

BUSINESS

# AIR TRANSPORTATION

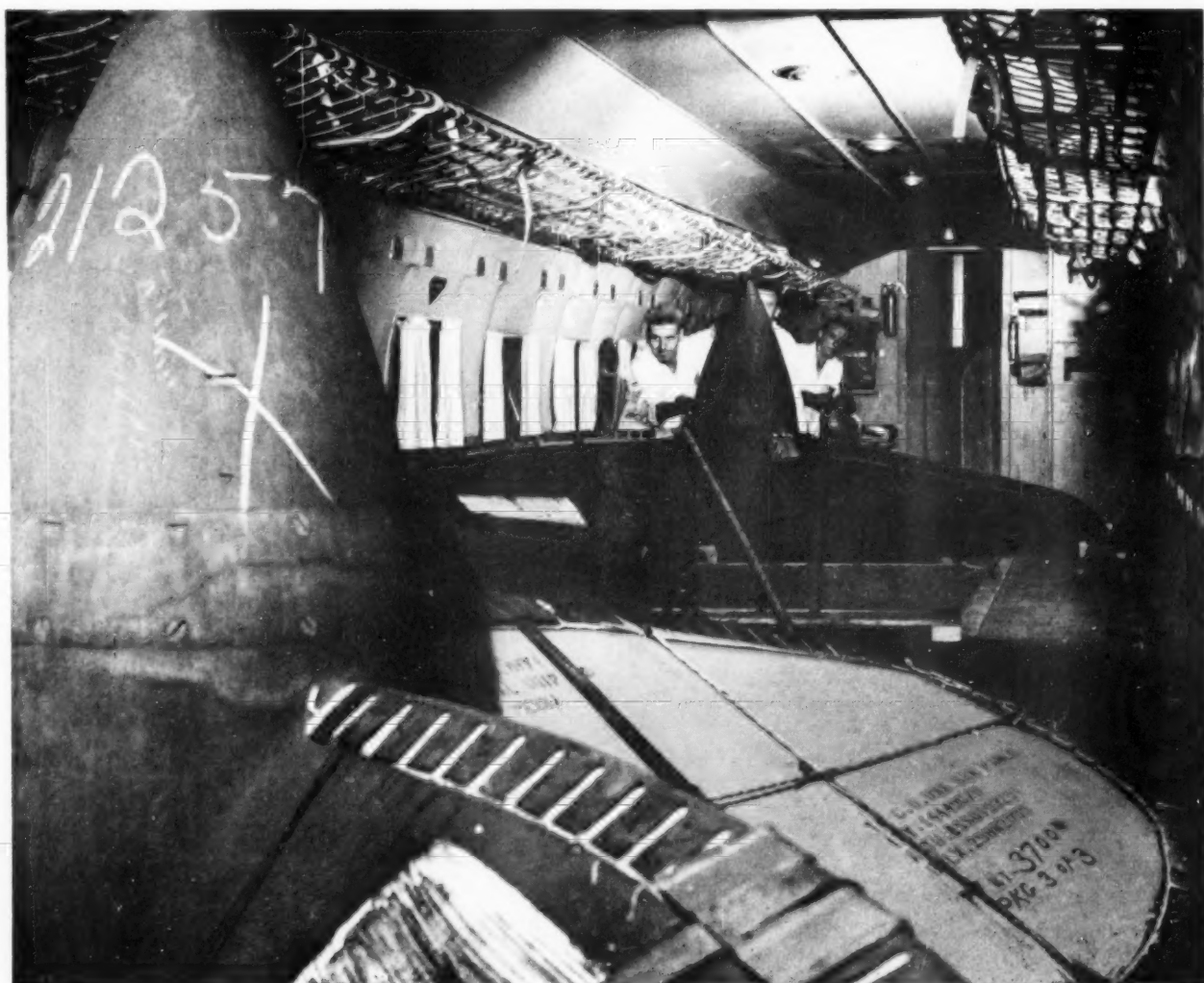
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FEBRUARY, 1953

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THE AIR MAGAZINE FOR THE BUSINESS EXECUTIVE

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Cargo Plane Interior—Seaboard & Western

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October, 1942



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AUDIT, INC.

**AIR TRANSPORTATION**, published once each month, thoroughly covers the entire air cargo industry for the benefit of all those engaged in shipping and handling domestic and international air freight, air express, and air parcel post, as well as using the domestic and international air mail services. Included in **AIR TRANSPORTATION'S** wide coverage are: air shipping, cargo plane development, rates, packaging, materials handling, documentation, air cargo terminal development, insurance, routing, interline procedures, new equipment, commercial airlines, military air transport service, air freight forwarders, personnel and business air travel.

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# The Air Cargo Terminal

By H. O. Olson,  
*Equipment Engineer,*  
Douglas Aircraft Co.

HERMAN O. OLSON, equipment engineer for the Douglas Aircraft Company, began his career with the company 17 years ago. In all that time he worked in experimental planning during the building of the first DC-4, the XB-19 and the B-23 from 1937 to 1940. In 1940 and '41, he was project supervisor on the C-54. Olson was instrumental also in laying out the mass production assembly line of C-54s in the Chicago plant during the war years from 1941-45 when the plant was producing three airplanes a day. He has been in the Company's service department since 1945 supervising equipment development and cargo loading equipment development.

Olson presently is a Douglas representative on the National Security Industrial Association's Air Cargo Task Committee and is active on its Air Cargo Terminal Sub Committee.



IT IS MY PURPOSE to discuss the problems confronting the Air Cargo Transportation industry with respect to the ground handling and loading of cargo from an aircraft manufacturer's point of view. Specifically, it concerns the development of a terminal facility. Though a great volume of air cargo is and will continue to be hauled on passenger airplanes, the problems presented here concern only the loading of all-cargo airplanes.

The requirements for an Air Cargo Terminal are basically those of providing a means of efficient material handling. The problem starts at the point of delivery by surface transportation, follows through weighing, manifesting, load consolidation, and the ultimate movement to a position in the airplane. Up through the point of load consolidation the problems are not unlike those of any transportation media handling packages of a wide assortment of sizes, shapes and weights. The problem of movement beyond the point of load consolidation to an ultimate position in the airplane is unique to air transportation. It is unique in that an airplane, unlike a truck or boxcar, cannot be conveniently positioned to a loading dock so that its deck is at a common level with the terminal.

Cargo traffic personnel were long aware that some day they would have to provide a means of projecting the loading dock out to the airplane so that the cargo could be moved with a minimum of handling operations. Long range plans indicate that it is now logical to build reasonably permanent air cargo terminals at some of the major airports, so we may expect to see the Air Cargo Loading Docks come into existence as the key to reducing ground handling costs.

Engineers refer to the loading dock as a method of "bridging the gap" between the terminal and the door of the airplane which has been positioned as close as practicable either by taxiing or by towing. Several dock ideas have already been tried, some with a good degree of success, but probably none have been as satisfactory as desired. The bridge or loading dock must meet certain requirements in order that it gain the maximum of utilization.

Probably the most important requirement is that it must be capable of supporting the on/off loading of just about everything the airplane is capable of hauling. It

must also be wide enough to accommodate a conveyor extension and still leave room for the movement of the majority of items not suitable to conveyors. A wide dock also provides ample maneuvering space for vehicular equipment as well as long and bulky cargo. The bridge must be adjustable to the variety of deck heights presented by the several models of cargo aircraft now in service.

It is interesting to note at this point of the discussion that the problems of loading general cargo have not indicated that any one particular height of the airplane deck would be most desirable. For a long time people have been of the opinion that the successful cargo airplane would be one built low to the ground, with a deck at truck-bed level, and doors of such a size and so located as to solve all loading problems. Yet, it can be seen that neither the height of the deck nor the size and location of the loading door afford any particular convenience in getting the cargo from the terminal to the airplane.

The matter of deck height has caused considerable discussion with regard to the level to which the terminal floor should be built on the airport side of the building. There is a strong opinion that the most economical cargo airplane will long continue to look like its passenger counterpart wherein deck height is a function of airplane size. This would indicate that the terminal floor on the airport side could be built to approximately 110 inches above the apron to index with current cargo airplanes. The accompanying sketches (see page 31) show a study of conditions experienced with respect to the percentage of grade of the bridge for various airplanes. It will be noted that in none of the cases are the "ramp" slopes critical.

The need for adequate air cargo terminals is not experienced by the commercial operator alone. The Military Air Transport Service, with its tremendous air lift of high priority cargo to all points on the globe, has the same problem. At some bases they already have excellent terminal buildings, needing only the loading dock to streamline their operations.

The material handling engineers have a specific role in the development of the Terminal, particularly in support of the loading dock. The goal is a single handling

(Continued on Page 31)

# YEAR-END SUMMARY

## from the CAB

**T**HE CIVIL AERONAUTICS BOARD has announced its year-end summary of scheduled and non-scheduled United States air carrier operations during 1952. The 1952 estimates are based on statistics available to the Board at the time of release, and are highlighted by the following major achievements:

1. A saving to the United States Government of more than \$16 million achieved by the Board's downward adjustment of mail rates for both domestic and international air carriers.

2. The best safety record ever achieved by United States scheduled domestic air carriers. The new record indicated 0.38 passenger fatalities per 100 million passenger miles. This compared well with the previous all-time record of 1.1 passenger fatalities achieved in 1950.

3. An unparalleled increase in low-fare air coach traffic, which increased 83 per cent over 1951.

According to the Board the economic field for the year 1952 has been a period of dynamic change and progress for United States carriers, and several economic phases of airline operations for the calendar year 1952 were discussed as follows:

### Operating Volume

Domestically and internationally, passenger miles increased 17% over 1951 and mail ton-miles and express and freight volume advanced 9%. Due to the growth in coach traffic with its longer haul, the average passenger trip increased by about 7%.

### Mergers

The year 1952 was notable because of activity in merger negotiations. This increased activity was partly due to pressure from the Board to reduce subsidy requirements through route integration. CAB approval was granted and arrangements concluded to consolidate Mid-Continent Airlines, Inc., with Braniff Airways, Inc., and Empire Airlines, Inc., with West Coast Airlines,

Inc. Mergers involving Chicago and Southern Air Lines and Delta Airlines, Colonial Airlines and Eastern Airlines, and Colonial and National Air Lines are still being considered by the Board.

### Local Service Airlines

The temporary certificates of several local service airlines were extended by the Civil Aeronautics Board for varying periods. Local service airlines accounted for a total of 336 million passenger miles during the year, an increase of 16% over 1951, or less than 3% of total domestic passenger miles.

### Irregular Carriers

Hearings were in progress during 1952 on the CAB-initiated investigation into the economic need for non-scheduled air transport by irregular carriers as a supplement to the services provided by the certificated regular carriers. The hearings will continue in 1953.

This group of carriers, conducting intermittent air service to the larger domestic and foreign traffic centers, reported approximately one billion three hundred million passenger miles in 1952, which equals 8.5% of the passenger miles flown by the certificated regular carriers. (The airfreight figure, probably higher, was not given.)

### Mail Pay

In 1952 the CAB issued a report on the separation of subsidy from mail pay for international, overseas and territorial operations of United States carriers, similar to the report on domestic carriers issued late in 1951. These reports were issued as a part of an overall program directed by Congress to the development of an economically self-sufficient air transport system. On the basis of these reports it is estimated that for the fiscal year ended June 30, 1953, total mail pay to U. S. air carriers will be \$128 million, of which \$70 million will be subsidy. These amounts are roughly 10% and 5%, respectively, of estimated total airline revenue.

During 1952, the mail rates for a large part of the industry were adjusted downward, resulting in an estimated cost to the Government of \$1.12 per ton-miles, compared to \$1.30 in 1951, indicating a saving of \$16 million on the 92 million ton-miles of mail carried in 1952.

### Combined Scheduled Operations

Plane miles flown per major accident in 1952, based on estimates, should aggregate about 15 million, the highest figure ever reached during the 1938-1951 period and more than double the average for those years. In 1938, approximately two and one-half million plane miles were flown per major accident. This figure increased gradually over the years until in 1949, 1950, and 1951, it stood around 11 million plane miles. The average over the 14-year period 1938-1951 was some 7 million miles.

### Large Irregular Air Carriers

Passenger operations of these carriers in 1952 involved estimated totals of 700,000 passengers and one billion three hundred million passenger miles, the highest annual totals in the history of these operations. Their one fatal accident caused 26 passenger deaths. The passenger fatality rate of 2.0 is the best annual one ever achieved by the large irregular carriers. The rate for 1951 was 7.2.

### Non-Air Carrier Operations

These operations include such flying as instructional; pleasure; business (including executive); cargo and passenger, Federal, State, and Municipal, and aerial crop control. The peak year was in 1947 when 9253 accidents were recorded. Following that year, a steady decline in both exposure and accident totals has occurred until in 1951 the accident figure was 3824, the lowest since the 3343 recorded in 1944. Estimates for 1952 indicate that the year-end total will approximate the 1951 figure of 3824.

THE authors note that "under actual operating conditions, the cargo fleet shows an earning capacity that is considerably larger than that of the passenger fleet. The problem of no show passengers, complicated reservations systems, people who become ill [etc.] does not exist in cargo operations. The record . . . demonstrates that higher average load factors, and a definite increase in profit margins are achieved as a result."

# AIR CARGO TRENDS

Part II of a Report on Air Cargo by  
L. R. 'Mike' Hackney and C. J. Rausch  
Lockheed Cargo Engineers

## Main Findings of the Survey

- 1—The potential of air cargo traffic, especially airfreight, has barely been exploited.
- 2—Newer and more economical cargo planes will aid the growth of air cargo.
- 3—In 1955, an airfreight volume of 350 to 450,000,000 ton miles will be flown.
- 4—In 1958, domestic cargo revenue will constitute 36.71% of the total airline revenues (in 1950 it had been 19.66% of the total).
- 5—In 1960, over one billion ton miles of domestic air cargo will be flown.

**T**HE Airfreight Market. In order to estimate the possible market that exists for airfreight, a study was made of freight traffic moving by three main surface transportation systems, interstate rail freight, rail express and intercity truck traffic. Basic statistical information for preceding years was obtained from the following publications:

1. Rail—"Monthly Comment on Transportation Statistics"—Interstate Commerce Commission.
2. Rail Express—Estimated volume from various publications re airfreight potentials.
3. Truck—"Trends"—American Trucking Association.

In some cases, final 1950 figures were not available, in which case the figures were estimated from previous years' data. Basic rail ton miles were adjusted to represent interstate traffic only for the following classifications: Products of Agriculture, Manufacturers and Miscellaneous and L.C.L. traffic. *Animals and Products, Products of Mines and Forests were excluded*

from the calculation. No figures were available on the breakdown of truck traffic into classifications. Rail express is estimated only since the express agency has no statistics available for rail traffic on a ton mile basis.

From the study outlined above, Lockheed estimates the following traffic statistics for 1950:

Item	Estimated Ton Miles—1950
Rail—Prod. of Agriculture	51,200,900,439
Rail—Manufacturers and Miscellaneous	148,289,400,330
Rail—L.C.L.	4,293,576,556
Total—Interstate Traffic—3 Classifications	203,783,877,325
Rail Express	3,500,000,000
Inter-city truck traffic—All classifications	126,000,000,000
Total Surface Carriers	333,283,877,325
Domestic Airfreight Ton Miles—1951 (Estimated)	208,774,119
Percent of Surface Transport—1950	.0626%
1958 Airfreight estimate ton miles	1,000,000,000
Percent of 1950 Surface Traffic	.30%

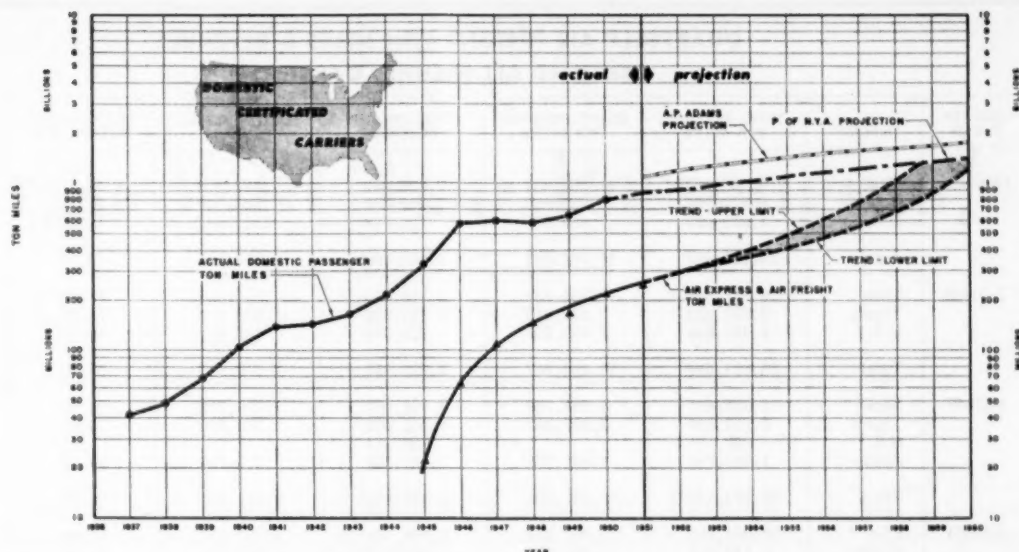
From the above, it will be noted that even at the upper limit of the airfreight projection, the authors' estimate amounts to only three tenths of one percent of the 1950 surface traffic that might possibly be converted to airfreight. It is again emphasized that surface traffic figures noted above *do not include* the large bulk movements such as Animals & Products, Products of Mines and Forests.

## COMPARISON OF GROWTH POTENTIALS

A very interesting comparison of passenger and air cargo projections is shown on the Chart wherein passenger mile figures are converted to passenger ton mile statistics for a more direct comparison with air cargo volumes. For the purposes of this comparison, airfreight and air express are combined into one curve which reaches a high point on the upper limit projection of 1,300,000,000 ton miles in 1959. At this point the freight and express projection crosses the curve for passenger ton miles taken from the Port of New York Authority forecast prepared in 1950.

With these figures and the 1950 cargo and passenger rates for the large air carriers, a number of interesting economic comparisons may be drawn. The year 1950 was used in this comparison as it is considered to represent a good average year for both the passenger and cargo business and without too much influence of wartime traffic.

**Fleets and Investments.** This report has already established the yearly cargo capacity of one 1049B airplane at 14,128,800 ton miles at 100% load factor. On the same basis, one 1049C passenger airplane, having a seating ca-



capacity of 67 passengers, would have a passenger pound capacity of 67 x 200 or 13,400 pounds per trip, including the weight of the passenger's baggage. Using the same block to block speed and utilization per day as for the cargo transports the passenger transport would have a yearly capacity of 4,904,400 passenger ton miles.

It should be noted, that under actual operating conditions, the cargo fleet shows an earning capacity that is considerably larger than that of the passenger fleet. The problem of no show passengers, complicated reservations systems, people who become ill or who are interested in that last cocktail before boarding, does not exist in cargo operations. The record for the year 1950 and other years demonstrates that higher average load factors, and a definite increase in profit margins are achieved as a result.

It should also be pointed out that while the total investment figures in the table are based on the 1959 potential, the profit and revenue margins or ratios will remain the same (for the rates used) whether that tonnage is reached or not, as they are based on the earning capacity of a particular type of airplane in a particular type of service. These figures also serve to emphasize the experience of all other forms of transportation wherein the transportation of cargo has always been the greatest producer of revenue. The transportation of air cargo is destined to assume the same role.

### OTHER PROJECTIONS AND STUDIES

In making this study, the authors purposely refrained from consulting

other reports and investigations of a similar nature. It was desired that this report represent an original study to the maximum possible extent. Only after this report was completed were other forecasts studied. The comparisons are interesting and are discussed below:

**CAB Forecasts.** The following is quoted from an article in the New York Times of March 7, 1949:

"A volume of airfreight equivalent in weight and revenue to the volume of passenger business is

historically, most systems of transportation have depended on the carriage of goods rather than of humans. Then, extrapolating the curve of air passenger growth since the war, and admitting as a negative factor, the high cost of cargo, the survey says that by 1955 the airlines of the United States should be carrying 1,150,000 tons of air cargo per year and, assuming a carriage of 1,000 miles per shipment on the average, a total of 1,150,000,000 freight ton miles."

### COMPARISON OF ESTIMATED REVENUES/INVESTMENTS CARGO AND PASSENGER TRANSPORTS

	Cargo Transports		Passenger Transports	
	100% L.F.	1950 Av. L.F. 76.52	100% L.F.	1950 Av. L.F. 65.80
Ton Mile Projection—1959	1,300,000,000	1,300,000,000	1,300,000,000	1,300,000,000
Ton Mile Capacity/Year—one 1049B or C ap.	14,128,000	10,810,475	4,904,400 P.T.M.	3,227,085 P.T.M.
			1,830,000 C.T.M.	1,400,318 C.T.M.
Total Fleet Req. to Lift Cargo or Pass. Proj.	92	120.25	288	402.78
Estimated Cost Per Airplane—Dollars	1,500,000	1,500,000	1,615,000	1,615,000
Estimated Fleet Cost—Dollars	138,000,000	180,375,000	439,776,000	650,441,000
Estimated Revenue from Total Lift	245,570,000	245,570,000	717,600,000	717,600,000
Ratio of Revenue to Total Fleet Investment	177.94%	136.14%	167.67%	110.35%
Cargo T.M. Capacity of Passenger Fleet			484,950,000	363,977,269
Additional Revenue from Cargo Space			81,607,055	106,535,306
Combined Revenue—Pass. & Cargo (Pass. Fleet Only)			809,207,055	824,135,306
Combined Revenue/Investment			189.07%	126.70%
Estimated Direct Cost/Airplane Mile—Cents	95	95	95	95
Miles Required for Total Lift	67,344,000	88,023,000	193,980,000	294,613,000
Estimated Direct Operating Cost—Dollars	63,978,800	83,621,850	184,281,000	280,072,358
Estimated Indirect Operating Cost—Dollars	48,064,595	62,858,545	187,616,486	285,141,060
Estimated Total Operating Cost—Dollars	112,043,395	146,480,395	371,897,486	565,213,418
Estimated Operating Profit—Dollars	133,526,605	99,089,605	437,309,589	258,921,298
Ratio of Profit to Total Fleet Investment	96.74%	54.94%	102.18%	39.81%

**AUTHOR'S NOTE:** The figures presented in this table are self-explanatory. Wherever possible the same figures (such as plane miles per year, direct costs per mile, etc.) were used so that both types of fleets would be on a comparable basis. Taxes, airport fees, interest on capital investment, and other items are not included in order to keep the comparison as simple as possible.

predicted for the airlines of the United States in 1955 in a survey by the Civil Aeronautics Administration that is being distributed among airport planners and others.

"The survey points out that,

The italics above are the authors' and call attention to the CAB forecast which may be compared with the upper limit of this study's curve of 1,000,000-ton miles.

Further evidence of the importance

**QUARTERLY AIR FREIGHT TON MILES & REVENUES  
CERTIFIED ALL FREIGHT CARRIERS**

QUARTER ENDED	AIRLINE	TOTAL REVENUE TON MILES	SCHED. REVENUE TON MILES	TOTAL FREIGHT REVENUE	SCHED. FREIGHT REVENUE	REV/TON MILE TOTAL OPER.	REV/TON MILE SCHED. OPER.
12-31-50	Slick	16,543,703	11,806,937	2,296,069	1,727,216	13.88	14.88
	Tigers	6,873,205	6,333,069	1,043,338	940,749	15.17	14.86
	U.S.	1,282,029	824,658	176,949	125,944	13.80	15.27
	Total	24,698,937	18,764,664	3,500,098	2,973,909	14.17	15.85
3-31-51	Slick	16,422,399	10,304,432	2,206,814	1,531,035	13.44	14.86
	Tigers	8,077,932	7,439,519	1,195,225	1,095,111	14.80	14.72
	U.S.	1,460,696	1,460,696	220,916	146,891	15.12	10.06
	Total	25,961,027	19,204,647	3,622,955	2,773,037	13.96	14.44
6-30-51	Slick	16,065,401	9,843,199	2,158,484	1,451,016	13.45	14.74
	Tigers	6,623,429	6,392,609	1,062,628	1,022,342	16.04	15.99
	U.S.	822,571		104,814			
	Riddle**	1,861,798	1,861,798	270,584	270,584	14.53	14.53
	Total	25,373,199	17,737,606	3,596,510	2,743,942	14.17	15.47
9-30-51	Slick	16,022,216	10,707,515	2,188,124	1,602,721	13.66	14.97
	Tigers	6,140,614	6,049,373	1,000,075	978,835	16.29	16.18
	U.S.***						
	Riddle	1,672,731	1,672,731	238,772	238,772	14.27	14.27
	Total	23,835,561	18,429,619	3,426,971	2,820,328	14.38	15.30
12-31-49*	Slick	7,381,523	6,428,671	1,126,333	1,120,222	15.25	17.43
	Tigers	3,648,801	3,609,790	573,484	562,899	15.72	15.59
	U.S.	585,170	477,945	99,275	69,708	16.97	20.77
	Total	11,615,494	10,516,406	1,799,092	1,752,829	15.49	16.67
3-31-50	Slick	7,094,142	6,841,067	1,074,304	1,036,242	15.14	15.15
	Tigers	4,854,057	4,193,443	749,696	639,296	15.44	15.25
	U.S.	648,885	591,810	85,631	69,543	13.20	11.75
	Total	12,597,084	11,626,320	1,905,935	1,745,081	15.13	15.01
6-30-50	Slick	8,177,795	7,812,598	1,216,463	1,167,982	14.88	14.94
	Tigers	3,974,708	3,695,206	627,892	577,651	15.80	15.63
	U.S.	872,607	754,004	122,318	87,863	14.02	11.65
	Total	13,025,108	12,261,808	1,963,235	1,833,053	15.07	14.95
9-30-50	Slick	13,796,834	9,464,772	1,975,553	1,373,411	14.32	14.51
	Tigers	5,733,341	5,181,621	887,634	776,666	15.48	14.99
	U.S.	1,093,064	650,109	172,137	78,876	15.75	12.13
	Total	20,623,239	15,296,502	3,032,258	2,228,953	14.70	14.57
12-31-51	Slick	19,380,596	13,296,204	2,704,225	2,005,488	13.95	15.08
	Tigers	8,331,063	7,993,212	1,292,629	1,260,478	15.52	15.77
	U.S.***						
	Riddle	2,716,931	2,716,932	394,411	394,411	14.52	14.52
	Total	30,428,591	24,006,348	4,391,265	3,660,377	14.43	15.25

Total revenue ton miles include scheduled and non-scheduled operations.

Defense contract operations other than Slick Navy and Air Force charters are not included.

Revenue includes pick-up and delivery charges.

\*\*Services inaugurated 3-25-51.

\*June not included.

\*\*\*Figures not available.

of a vigorous development program on the part of the airlines and manufacturers is contained in Pages 9 and 10 of the Tentative Opinion on the Air Freight Case prepared by the Economic Analysis Division of the CAB after a thorough review of all facts presented in Docket 810 Et. Al. (Order E-2759, dated 4-25-49) from which the following is quoted:

"Nor do we believe that a simple statistical projection of the growth

of airfreight over the last two years into the future is an adequate basis upon which to determine the demand for air traffic. Such a projection would indicate that by 1950 there would be an actual airfreight movement in the vicinity of 200 million ton miles annually and 250 million ton miles by 1953. While we do not ignore such a projected figure, we believe that the potential airfreight

market is many times greater than this volume of air traffic. With vigorous and wide spread development and promotional efforts, it is probable that a deeper penetration of airfreight potential will be realized than purely statistical projections would indicate."

The authors have supplied the emphasis shown above.

Port of New York Authority Pro-

(Continued on Page 30)

# Cargo Will Top Passengers!

by Milton A. Caine  
Managing Editor



**G**IVEN CERTAIN FACTS as evidence, certain conclusions must be drawn. If a rocket is pointed up and set off, there is no doubt but that it will rise. If surface forms of transportation profit through their cargo services, then obviously air transportation will too.

Or take another example as a case in point. The New York subways, which probably carry more passengers than any other railroad, and no cargo, are continually in debt. The same thing holds true for the Long Island Rail Road, which, like the subways, does not carry cargo. Obviously, passenger travel is not too profitable. From this evidence, it is then reasonable to conclude that air cargo, and not air travel, will follow the example



set by surface cargo and become the big breadwinner for its carriers.

Point a rocket up and set it off, it will rise.

Air cargo too will rise.

We predict that within 10 years—by 1963—air cargo revenues will climb higher than passenger revenues.

The evidence is in. Facts and figures point the direction air cargo is taking. Through the years they have shown an increase for air cargo that has been more constant and more rapid than the increase charted for passenger revenues, a fact that points to only one thing: the eventual—and by eventual we mean within the next 10 years—domination by air cargo of the entire aviation industry.

Just exactly what is this evidence, you may ask, that points to this conclusion? The evidence is this:

For two consecutive months, American Airlines carried more than four

million ton miles of airfreight. In the second of these months, a total of 4,283,863 ton miles was flown, which set the mark 30% above that recorded in November, 1951, and only 7% below the total carried in October, the first of the two record months. For the first 11 months of 1952, the company's airfreight traffic rose 25%, mail went up 14.6% and air express 8%.

Last April, for the first time anywhere, air cargo revenues topped passenger revenues at Colon's Free Trading Zone. Pan American World, who recorded the fact, stated that during the same month its passenger revenue went \$3,000 over its quota, but that cargo still went above that.

Local service airlines are recording enormous increases in their cargo departments. In one year alone, Pacific Northern Airlines' cargo activities jumped 325%. In one year also, the total cargo load flown by Frontier Airlines jumped 93% while its number of ton miles flown increased 87%.

There are other examples too. In less than five years, westbound transatlantic airfreight grew from 496,816 ton miles to 1,719,214. By 1955, the total of commercial transatlantic airfreight should move 340% over 1951's figure, noted Seaboard & Western's Raymond Norden. And the Lockheed cargo study, featured in this magazine declares that airfreight volume might very conceivably equal or surpass passenger business by 1959.

When the leading figures in the field all agree, that too is evidence. And while authorities have in the past been known to be wrong, their arguments, as in this case, are based on established proof that makes their predictions safe. Never before have they spoken with so much certainty as to the future of air cargo. Can we argue with the authorities? Not when there is no counter-evidence to refute them.

**L**ET US, for further proof, look at what is being done in aviation to accommodate the current up-surge of air cargo, and look also at what is being done in anticipation of this continued growth.

New cargo planes have been purchased or ordered by United Air Lines, Pan American World, Braniff, Seaboard & Western, FTL and BOAC, to name a few. Air France has ordered 12 Speedpaks to go with its *Constellations*. All-cargo flights have recently been started by Northwest, TWA, Sabena, and Pan Am. Even the army has ordered more cargo planes, but then, the army has always been sold on the merits of airfreight. Besides these, more warehouse space for air cargo



was recently or will soon be provided at Chicago, Idlewild and Haiti.

Does all this read too much like a success story? It is. Air cargo had a hard fight to win recognition not so much from the surface carriers as from the air carriers themselves and the CAB, all of whom should have been the first to see its potentialities and to encourage them. Even now, certain reservations are noticeable on the part of the CAB (as in its stubborn refusal to grant certification to S&W) and the airlines themselves concerning this growth of air cargo, as though they did not like to admit that they were wrong, and also as though consideration of its vital role in the modern business scene were beneath their dignity. But we predict that even these reservations will in time wear off, especially as airfreight continues to demand further attention on the strength of its consistent gains.

(Continued on page 29)

# ALL ABOUT AVIANCA

by William M. Smith

**D**URING the early 1920s, when Colombia teetered on the verge of economic collapse, one of the decisive factors in preventing that collapse was the country's major airline, Aerovias Nacionales de Colombia—more familiarly known as Avianca. Panic had gripped the country with the sharp decline in the market price of Colombia's major export, coffee. In

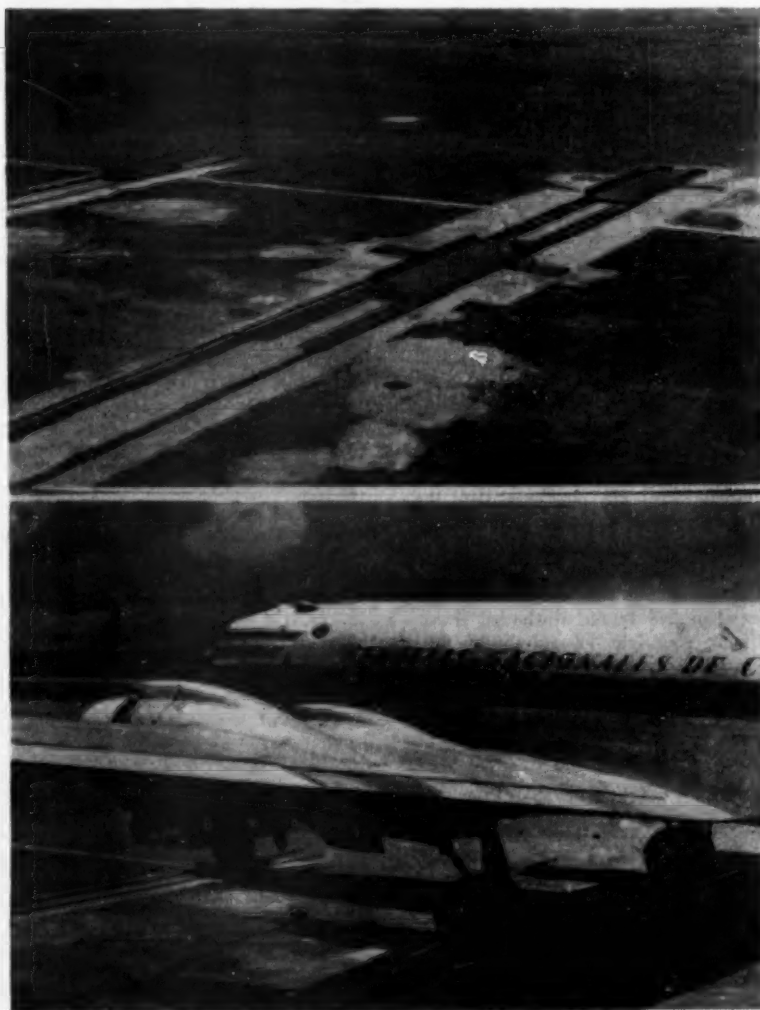
July, 1923, the government brought all economic activity to a standstill by declaring a three days' official holiday, then using five million dollars in indemnity payment from the United States, founded the Bank of the Republic during that time. This failed to halt the run on the banks at Bogota, but two seaplanes placed at the service of the government flew three and a

half million pesos in bank notes—the precious cargo weighing over one and a half tons—from Medellin to Bogota. The banks there were able to meet the run on them successfully, public confidence was restored and panic averted.

Prior to that time, as indeed, ever since, the airline's activities have become an integral part of the commercial scene in that rugged little country. With terrain hardly suitable for the paving of roads or the laying of tracks, air cargo there found a natural outlet and has been thriving, and helping the country thrive ever since 1919. It is not, therefore, without reason that Avianca can consider itself both the oldest airline in the Americas as well as the world's leading mover of airfreight and air express. Which airline, for instance, can boast of having flown 3,195,240 pounds of airfreight as far back as 1942? And which airline can claim the enviable total of 139,567,149 pounds of airfreight flown in 1951? The answer to both is Avianca, whose cargo operations between 1942 and 1951 increased 4368%!

As stated previously, the rough terrain was largely instrumental in the development of the airline and its air cargo business there. Back in 1920, property moving between Bogota and Barranquilla went by way of river boat and rail over a tedious journey that required a minimum of nine days. The distance is only 453 miles between, and today the airline's Constellations carry cargo and passengers over that distance in only 100 minutes. It is almost mandatory, as a matter of fact, to use air transportation over this distance where there are still no railroads or highways even today linking the capital to Colombia's second largest city. Surface transportation is not nearly so well developed as its aerial counterpart over which Avianca is virtually the sole master. In 1939, Avianca, then known under the corporate name of Sociedad Colombo-Aleman de Transportes Aereos (SCADTA), merged with Colombia's second largest airline, Servicio Aereo Colombiano (SACO) to become Avianca. In 1951, a second merger was completed through an exchange of stock between Avianca and its largest

(Continued on Page 28)



In many respects more progressive than its competitors, Avianca is constantly seeking to maintain its position as a leader in airfreight. Last year, it successfully demonstrated the use of Loadair, a device that brings the plane to the terminal building, thereby eliminating 50% of the time normally spent in loading or unloading the transport. In operation, Loadair catches the wheels of the plane in the three plates shown in the upper picture, then moves it sideways to its position at the terminal.

FOR  
REAL  
ECONOMY



USE  
AIR  
CARGO

VOL 22

FEBRUARY, 1953

No. 2

## Starts New Enterprise

NEW YORK—Air cargo has gone into the gift business. Or rather, an enterprising organization known as Air Shopping Service Corp. has conceived the idea of bringing to the consumer virtually anything he desires through the use of air cargo. While most large cities enjoy the advantage of having the greatest variety of goods flown to them constantly, purchasers in the local market are not so fortunate. Through the services of Air Shopping, this difference is more than made up.

Membership in the organization's Air Shopping Club entitles the shopper to seasonal offerings and a free gift sample each month for the duration of subscription. Thus for Christmas members received poinsettias flown by Avianca from Jamaica, for New Years a bottle top made of tree roots from Austria, for Valentine's Day they will receive a box of heart-shaped tomatoes flown from the Virgin Islands, for St. Patrick's Day an embroidered linen handkerchief from the Emerald Isle itself and so on. Among the items most recently offered for purchase were a doll from England, giant nectar pineapples from the Azores and cuff links and a bracelet from Siam. This enterprise represents one of the more imaginative uses to which air cargo has been put.

## Development of air cargo transportation — scheduled services, excluding China and the USSR.

Compiled by the International Civil Aviation Organization in Canada, the table shows the actual advances made by air cargo as well as the rate of increase between the years for both cargo and passengers. Of especial interest is the fact, pointed out at the bottom of the chart that while the increase in passenger miles from 1947 to 1952 rose 109%, cargo miles flown during the same period more than doubled that figure; the increase being 233%.

	Miles Flown	Passengers Carried	Passenger- Miles	Cargo Ton- Miles	Mail Ton- Miles
	Millions				
1952	1,044	45.0	24,544	623	178
1951	988	39.9	21,375	602	160
1950	890	31.2	16,963	518	143
1949	836	28.5	14,478	390	128
1948	789	23.5	12,987	286	114
1947	708	21.0	11,744	187	86
1937	165	2.5	876	.....	.....
Increase or Decrease Between Years					
1951-52	+ 8%	+ 13%	+ 15%	+ 4%	+ 11%
1950-51	+ 11%	+ 28%	+ 26%	+ 16%	+ 12%
1949-50	+ 6%	+ 18%	+ 17%	+ 33%	+ 12%
1948-49	+ 6%	+ 13%	+ 11%	+ 36%	+ 13%
1947-48	+ 11%	+ 12%	+ 11%	+ 53%	+ 30%
1947-52	+ 47%	+ 114%	+ 109%	+ 233%	+ 103%
1937-47	+ 329%	+ 740%	+ 1240%	.....	.....
1937-52	+ 532%	+ 1700%	+ 2701%	.....	.....

## ATC Rule Benefits Airfreight Set Up Zones Speed Shipments

WASHINGTON, D. C.—Plans for greater industry cooperation with the Army has been worked out by the Air Cargo Advisory Board of the Air Transportation Association. These plans and recent changes in military regulations covering airfreight movements have put airfreight for the first time on a par with rail express, which means that a sounder competitive basis now exists between these two means of freight movement.

For further efficiency, the Army's Transportation Corps has established four regional zone offices and increased local authority in each. The zones are located in Salt Lake City, St. Louis, Memphis and Pittsburgh. The increased authority, intended to help expedite shipments, is based on three measures:

- 1—Shipments under 500 pounds can move either via airfreight or rail express without obtaining permission from higher authority.
- 2—Shipments between 500 and 5000 pounds can move via either method but must have authorization from the zone office.
- 3—Shipments over 5000 pounds can also move via either method, but they must

be approved from headquarters in Washington.

### Additional Ideas

To provide an organization that will work with the army, help in the utilization of airfreight transportation and meet the competitive challenge, a suggestion has been made by the Advisory Board that industry set up a zone system comparable to the Transportation Corps'. With this in mind, the Board has adopted a three-point program as follows:

- 1—An airline is to be appointed as industry representative at each of the four zones.
  - 2—Determination is to be made for traffic distribution among carriers.
  - 3—An agreement is to be drawn up for the overall proposal to be presented before the Transportation Corps.
- A fourth point might be added: that each carrier is to assign an employee to act as permanent contact.
- There appears to be little doubt in anyone's mind but that these plans will prove beneficial to airfreight, to industry and to the defense effort as well.

## Hits New High for Cargo

MIAMI — Although November is considered the traditionally high month for air cargo shipments here, Pan American World Airways moved a record 135,357 pounds of revenue cargo out of Miami in one day. This was in the middle of December, and the total exceeded the previous one day record set November 20, 1951, by 8780 pounds.

For November, the carrier flew a total of 2,580,459 record pounds of revenue airfreight and sent it winging to virtually all parts of Latin America. Outward cargo, claimed Pan Am, exceeded by 10 to 1 all inbound shipments, a ratio that is not considered unusual for this city. In one week, the carrier bettered by 13,068 pounds the best week of November, 1951. Officials of the airline said that these record totals are attributable to the annual Christmas flood of merchandise that is usually sent southward in November, and to the ever-increasing flow of home appliances that are finding new markets in Latin America.

## FTL Flies Power Plants

HARTFORD—An undisclosed number of Lycoming R-1820 engines were flown from Brainard Field by The Flying Tiger Line to the west coast. The engines, which are of the same general type used in the B-17 Flying Fortress, weighed a total of 15,000 pounds, and were again flown from the west coast to an Air Force depot in Japan. Further application of the engines are in Grumman SA-16 air-sea rescue amphibians, larger helicopters and anti-submarine aircraft. Flying the engines naturally saved much valuable time moving them into strategic areas.

## FAL Cites Cargo Gains

DENVER—Within the first six months of last year, Frontier Airlines flew an increase of 52% in ton miles, a figure that is considered by all a good start. With the tallies for the rest of 1952 still outstanding, the carrier has listed some of its cargo advances made during the year before.

In 1951, more than one-third of all air freight carried by local service airlines went via Frontier.

In that same year, the number of ton miles flown by the carrier increased 87%. The total load flown in 1951 increased 93% (a total of one and one half million pounds).

These, as any airline will admit, were no small accomplishments. Frontier claims that geography keeps it in the airfreight business, what with deserts, mountains and treacherous roads that make surface transportation slow and difficult in the West. Other factors are the growing petroleum industry and new markets for perishable goods. The former keeps Frontier busy hauling drill bits and heavy machinery, the latter does the same with strawberries, carnations, peaches, etc. From one extreme to the other, just about everything goes via airfreight.

**The only airfreight story!  
BOXCARS IN THE SKY**

## 10 Lead Items Listed

NEW YORK—As a more and more diversified list of items becomes airborne, it becomes obvious that the items can be grouped according to frequency of movement by air. At this city, the Port of New York Authority has been able to put together the following table containing the 10 leading air cargo commodities that were handled here.

- 1—Medicinal and pharmaceutical products.
- 2—Synthetic fibres manufactures.
- 3—Precious stones and high value articles.
- 4—Books, maps, pictures and printed matter.
- 5—Electrical machinery and apparatus.
- 6—Photo and projection goods.
- 7—Aircraft parts and accessories.
- 8—Furs and manufactures.
- 9—Scientific instruments and supplies.
- 10—Auto parts and accessories.

## Win Packaging Awards

SANTA MONICA — Their interest in packaging has brought to two Douglas Aircraft workers fair returns in the form of two awards for new ideas in packaging. The lucky men are W. E. Christopherson, who won third prize (\$25) for a package designed to hold F3D rudders, and W. W. Arnold, who won second prize (\$50 and a trophy) for a metal container package that is closed by the use of rivets. Christopherson the year before had won an award of \$100. The national awards were presented at a meeting of the Society of Industrial Handling Engineers held in Chicago.

## Flies Pants to the Rescue

MONTREAL—Members of the Victoria Cougars, Canadian hockey team, probably feel that the worst calamity that could befall them is to be left without pants. Actually, the team was eagerly awaiting a shipment of new pants, but the shipment was not ready to leave here until the morning of the game. With the game being held a continent's breadth away, only airfreight could solve the problem. And it did. Trans-Canada Air Lines' air cargo service delivered the pants just one hour before game time. But the anxiety must have taken its toll; the Cougars lost 5-1.

Concerning its air cargo operations, TCA feels rather pleased over the fact that its combined air cargo and air express volume increased all of 27% last year, topping the increase in passenger volume by 7%.

TCA, incidentally, has announced the purchase of 15 Vickers Viscounts for use on its inter-city services. The new aircraft will be delivered early in 1954.

## AIRFREIGHT FORWARDERS

**AIR EXPRESS INTERNATIONAL AGENCY:** Two new posts have been created in keeping with the firm's expansion in the fields of international air and ocean cargo. The first of these covers the development of system sales and operating procedures covering air and ocean export cargo as well as domestic air consolidation services. The other covers clearance of ocean and air import cargo through U. S. custom houses. Alvin B. Beck has taken charge of the first post, and Frank J. Eberle has taken charge of the latter.

**D. C. Andrews & Company:** It appears likely that the Port of Seattle is the first in the U. S. to engage a freight forwarding concern to give that port full representation throughout most of the civilized world, particularly throughout the midwestern U. S. and the Far East. Andrews, of course, is the firm thus engaged, and it is currently reactivating its pre-war connections in the Orient. Current assumptions are that this idea will take root shortly among other ports throughout the country, and possibly throughout the world as well.

**Emery Air Freight Corp.:** Peter J. Byrne has been promoted from district manager to assistant vice president of the Corporation. His headquarters, as previously, are maintained at the firm's Chicago office. Also raised from district manager to assistant vice president was H. A. Pfaff, whose headquarters remain in Detroit. And John L. Denny has been named assistant to the manager of District 1. This district in the firm's system of airfreight deliveries includes the City of New York.

**Uno Shipping Company:** IATA has recently added this firm to its list of approved agents. A comparative newcomer in the field, this organization began business in April, 1946, and is now prepared to handle air and ocean cargo to all destinations. IATA's approval marks the firm's coming of age.



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## AIR TRANSPORTATION

# Congratulates

### AIR TRANSPORT ASSOCIATION:

Three new members have been elected to ATA's board of directors, and the total number raised from nine to ten. The new members are T. E. Braniff, of Braniff International; John H. Connelly, of Southwest Airways; and Robert F. Six, of Continental. Vice Admiral Emory S. Land has been re-elected president of the organization.

**Braniff International Airways:** At the carrier's first meeting of the board since its merger with Mid-Continent Airlines, William A. Blakley, Dallas attorney, was elected a director. Blakley is also a board chairman of an insurance firm there.

**Pan American World Airways:** Effective since the first of this year, Wilbur Morrison has been named an executive vice president of the company. Morrison, in charge of Pan Am's Latin American Division, now supervises operations throughout Latin America from U. S. gateways at New York, Miami, New Orleans, etc. The airline's president, incidentally, Juan T. Trippe, was recently awarded the Order of Merit by the Federal Republic of Germany. This was the first time this award had been given to an American citizen, and it was awarded for "extraordinary services to the peaceful recovery" of the country.

**Philippine Air Lines:** A number of

new executive appointments have been made, consisting in part of the following: Ch. N. Biondi is now vice president-general traffic and sales manager; Col. Lee A. Telesco is administrative assistant to the vice president; and Col. Walter L. Hurd, Jr., is vice president-general operations manager.

**Piasecki Helicopter Corp:** Formerly with McDonnell Aircraft, Don R. Berlin has been elected president of Piasecki. Former president, C. Hart Miller, is still with the firm but as executive vice president and general manager. Berlin has a heavy aviation background, having worked previously with Douglas Aircraft, Valley Engineering, United Aircraft, Stearman and Curtis-Wright.

**Trans World Airlines:** The president of National Distillers has been elected a director of TWA, effective upon the approval of the CAB. His name is John E. Bierwirth, a native of Brooklyn, and a director also of numerous corporations in the chemical and industrial fields.

## Distribute Toys via DC-4

BURBANK—Keeping well within the Christmas spirit, two companies, Atlas Supply and Standard Oil, flew 18 tons of toys to New England orphanages during the yuletide season. Instead of the traditional sleigh, these latter day Santa Claus' used a DC-4 to carry the huge volume of gifts. The toys were made at North Pole (New York) and were distributed to hundreds of children who were waiting for them at the various local airports where the plane landed. Needless to say, they were very well (and happily) received.

## Asks to Fly Tokyo Service

NEW YORK—Pending the approval by the Civil Aeronautics Board of its application, Trans World Airlines is preparing to begin service to Tokyo and other cities in the Far East at the earliest possible date. According to TWA's board chairman, Warren Lee Pierson, the new service would answer the urgent demand from businessmen and government officials for a service over this area, and particularly between Tokyo and Bombay where no direct airline service at present exists. The cities to be served between those two points will depend to a considerable extent on the final findings of traffic studies now being conducted. Pierson stated that he hoped approval will be granted shortly so that the new service could begin no later than July of this year.

In the first six months of 1952, TWA did more than \$500,000 worth of business in its Pacific-Orient region through off-line sales offices in Tokyo, Hong Kong, Sydney and Honolulu.

## Speed, Safety Emphasized

BURBANK—No better example of the safety and care that governs airfreight movements exists than this: Slick Airways has been shipping thousands of pounds of turkey eggs to Eastern and mid-Western hatcheries without a shock. Hatchability of these eggs was relatively low when they went the long way by rail. But by being airfreighted, the eggs have a 12% better chance to be hatched. Packaging is no problem, the airline reported, since the eggs are flown in their usual cardboard containers, and the smoother ride and better handling give the turkeys a better chance to be born. Airfreight is also solving the distribution problem for the turkey industry, proving to be an asset all around.

Slick also reported that due to having flown some massive reels of coaxial cable overnight from Yonkers to California, Palm Springs will soon be getting better TV reception. Located in a valley, the desert resort was missing out on this new entertainment medium. The all-cargo carrier has also recently flown a shipment of 100,000 empty tin cans from San Francisco to Columbus to meet a rush demand for the newly-designed containers.

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## Delta-C&S Merger OK'd

CHICAGO—In one of his last official acts before leaving his post, former President Truman gave his concurrence and approval to the proposed merger of Chicago & Southern Air Lines and Delta Air Lines. Presidential approval was required due to the fact that some international routes were involved. The Civil Aeronautics Board also approved the merger, which plan will be submitted to the stockholders of both companies shortly.

When finally approved by the stockholders, the new name will be Delta-C&S Air Lines. The combination would form, said the presidents of both carriers, "the sixth largest airline in the United States, with routes totaling 9508 miles. The merger agreement called for the exchange of \$10,000,000 of Delta 5½% debentures for the 509,326 shares of C&S stock outstanding.

## Offer Fellowships Again

NEW YORK—As it did in 1952, Seaboard & Western Airlines has offered two fellowships for the study of air cargo at Columbia University's Graduate School of Business. Valued at \$2000 each, the two fellowships are open to students from American, Canadian and foreign universities who are qualified for acceptance in the Graduate School. As reported in this magazine last year, the aims of S&W's fellowships are as follows:

- 1—To study sources of supply and market for either current or likely candidates of air cargo.
- 2—To study the packaging and handling of such candidates.
- 3—To give a broader understanding of airfreight in world commerce, and its possible future.

## Flies Non-Stop to Cuba

HAVANA—DC-6 transports belonging to National Airlines are now flying a daily non-stop service between this point and New York City. This represents the first service of this type to be offered between these two points, and being non-stop, puts the cities just five hours away from each other. National's other NY-Havana flights still stop at Miami or Washington and Tampa en route.

## Modernizes Fleet for 1953

PARIS—This year, Air France will operate "the world's most modern air fleet," according to the carrier's general manager in North America, Henri J. Lesieur. Beginning this spring, the airline will offer jet service on *Comets* flying its routes in Europe, Africa, the Middle and Far East. New turbo-prop aircraft will be used on its short range European routes, and *Super Constellations* with compound thrust engines will fly its transoceanic routes. With these new craft, Air France will be one of the fastest airlines operating today.

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## MATS Lists '52 Record

WASHINGTON, D. C.—Not alone in finding that 1952 had been a big year for air transportation, the Military Air Transport Service has also chalked up an impressive list of figures for that year. In 1952, MATS averaged during each hour of the year the airlift of 10 tons of cargo, 58 military passengers and seven medical patients. This means that from the first day of 1952 to the last, the organization flew about 300,000 tons of high priority military cargo and mail around the world, 219,000 medical patients and more than 1,400,000 military passengers. In 1952 also, MATS celebrated its fourth anniversary of service. Its operations in the strategic areas of the world were made possible by the coordinated work of more than 100,000 MATS military and civilian personnel.

## Cites Gains Made in '52

WASHINGTON, D. C.—According to Dr. Lewis C. Sorrell, director of research of the Air Transport Association, cargo ton miles topped 400,000,000 and mail ton miles went over 97,000,000 during 1952. Gains were made, Sorrell noted, in all branches of the aviation field—cargo, mail and passenger—over the all-time highs reached in 1951. Furthermore, the airlines in 1952 also chalked up their best safety record so far. Revenue passenger miles in 1952 gained 17.3% over 1951, and revenue ton miles were up 14.3%. From the steady rate of advance made in all departments, it appears obvious to all observers that the peak year has not yet been reached for the aviation industry.

As to the 14.3% gain listed for air cargo, it stands for the 2,155,014,986 total revenue ton miles flown in 1952 by the entire domestic and American-flag international airlines scheduled, certificated freight and irregular service carriers. Total cargo revenues for these same carriers amounted to \$1,207,873,667, an increase for the year of 13.8%.

## Cars Increase in Ferry

SOUTHAMPTON—With the car ferry season in full swing, as many as three times more cars are currently being flown to France, reported Silver City Airways, as were flown in the winter of 1951. Most of the people who book auto reservations are businessmen, the carrier added. Within two months alone 1500 cars were actually airfreighted over the English Channel.

# Predicts 340% Cargo Increase By 1955 and More Gains After

NEW YORK—Despite the attitude of the Civil Aeronautics Board, which, said Seaboard & Western Airlines' president, Raymond A. Norden, is "the greatest and most consistent barrier" to the development of transatlantic airfreight, commercial airfreight movements over the North Atlantic will increase 340% over 1951's figures in 1955. "It is a self-evident truth," continued Norden, addressing the New York Society of Security Analysts, "that passenger and freight traffic are constantly expanding quotients as evidenced in the growth of the sum total of domestic and foreign transportation."

Profits from operations in 1952, he claimed, will prove to be about the same as it was in 1951 when S&W made a profit after taxes of \$801,000 including a capital gain of \$410,000. By 1955, with the impetus given the transatlantic airfreight traffic by the use of S&W's still-to-be-delivered fleet of *Super Constellations*, a total of 160,000,000 ton miles will be flown, he predicted. By 1960, the figure should come to 450,000,000 ton miles. Looking still farther into the future, Norden averred that more than a billion ton miles could be met by airfreighters with aircraft developed to where it can lift about 50 ton loads across the Atlantic at direct operating costs of four cents per mile.

### Acquires Ninth DC-4

While awaiting the delivery of its freighter *Super Connies*, S&W has acquired its ninth DC-4 freight plane. The

new addition is expected to be assigned to the carrier's transatlantic fleet shortly. After its *Super Connies* are delivered to the airline in 1954, they are expected to add about 16 million dollars to operating revenues in their first full year of operation.

## To Order Super Connies

MINNEAPOLIS—To supplement its fleet of four-engine aircraft, Northwest Airlines has decided to order an as yet undisclosed number of *Super Constellations*. Although the carrier has recently begun all-cargo operations to the Orient, officials of the company have given no word whether the new planes will be used for a similar service or for combination service; although the decision will probably favor the latter. Until the *Super Connies* can be delivered, Lockheed will supply NWA with a few early model *Constellations*, the report said.

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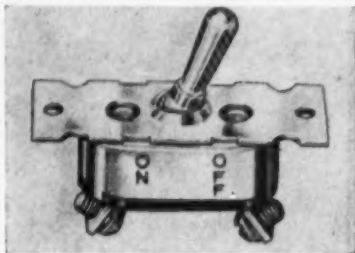
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## NEW EQUIPMENT

### FOR THE *Shipper & Carrier*

**Arrow-Hart & Hegeman Electric Co.:** Now available to all is an improved version of a bomber-type aircraft toggle switch similar to the type used



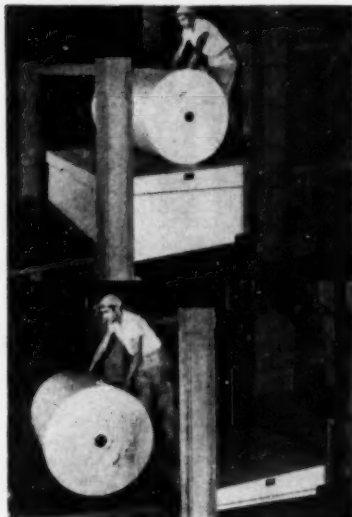
extensively during World War II. Compact and nicely formed, the switch is manufactured to meet Army and Navy requirements, and has, of course, been approved by both bodies. Single pole types are available with momentary or maintained contact, and toggle levers are supplied with plain, radioactive or fluorescent tips. It is probably the most perfect switch of its kind to be made. Available in both two and three position types.

► **Coffing Hoist Company:** New convenience and safety ideas are featured in the firm's Model R coil-chain ratchet-lever hoist. Among these are the use of a coil instead of roller chain, a handle that operates in any position and any place no matter how cramped, safety stops that prevent the handle's spinning, and a simple construction that makes disassembling possible with just a screw driver in a few seconds. The unit is currently available in 1500 and 3000 pound capacities. Every Model R is factory tested at 100% overload.

► **The Hamilton Tool Company:** Simplification of the positioning of tools,

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materials, components and other heavy or bulky items has been accomplished with a Portelelevator, a flat platform that can lift or lower weights up to 6000 pounds. Table area of the device measures 60" x 72", and it lifts from 5 1/4" to 26" above floor level. Push button operated and enclosed on four sides, the Portelelevator also has an automatic tilt top mechanism that discharges the load onto the floor, from which it is picked up by a fork truck. These pictures of the Portelelevator in operation graphically show the ease with which positioning is accomplished. Electrical characteristics include a one h.p. operating motor, limit switch and reversing magnetic starter. Additional information concerning this item may be had by writing the company at Hamilton, Ohio for Bulletin P-5299.



► **Minneapolis-Honeywell Regulator Co.:** Recently added to its line of standard products is a combination pressure regulator that provides a single, compact unit containing the functions of a reducing-relief valve and a filtering arrangement as well for line service. With this regulator and filter, line pressures up to 150 pounds per square inch can be easily reduced and maintained at any regulated output pressure from 0 to 35 psi with no appreciable drift or air consumption. Furthermore, a clean supply of air for pneumatically-operated instruments is assured at all times.

► **Towmotor Corp.:** Four of the firm's most popular fork lift truck models are

now available with either gasoline or diesel engine. The use of diesels in these vehicles is comparatively new, but extensive tests have proved them both economical and unusually powerful for their size and weight. Since there appears to be a growing demand for diesel-powered units that will retain all the basic operating features of gas-driven equipment, Towmotor has found it expedient to answer both types of truck. Tests have also proved that the diesel engines stand up even under the toughest prolonged service, and that their simplified design assures minimum operating and servicing problems. Further



details can be obtained by writing Towmotor at 1226 E. 152nd St., Cleveland, Ohio.

Towmotor, incidentally, is offering an exact duplicate of this truck as a toy for youngsters. Exact in almost every detail, except for the motor, and with forks that actually move up and down, the truck should prove a delight to young and old alike. It can be obtained directly from Towmotor at the low cost of only \$3.50. It's one of the finest toys out today.

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in March

## Flew Over 2 Million Chicks

CHICAGO—With the last few months of 1952 still to be figured, United Air Lines was proud to report that it had flown more than two and a quarter million baby chicks in its airfreight operations that year. 'Fares' for the feathered youngsters averaged only two cents per trip, further proof that airfreighting is not expensive for shippers. UAL, incidentally, has found it necessary to expand its cargo capacity by 36% to accommodate the current growth in air cargo activities.

## Puts DC-6 to Work

FRANKFURT — With Westover Air Force Base in Massachusetts as one terminal, and this city as the other, the Military Air Transport Association now has instituted transatlantic operations using a Douglas DC-6 Liftmaster. Designated C-118A, the transport has a cargo capacity greater than the largest railroad car now in use. On its first flight over the Atlantic, the plane carried more than 6000 pounds of mail and 30 passengers. Actually, the Liftmaster can and will carry capacity payloads of 20,200 pounds about 2100 miles non-stop. This is the military version of the DC-6 that recently made the first commercial transpolar flight for SAS. At present, eight monthly flights are scheduled between the terminal points mentioned above.

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# German Airline to Fly Again Plans to Use U. S.-Built Craft

BERLIN—At least six months closer to reality than when first mentioned in this publication last July are West Germany's plans to re-enter the aviation field with a German flag airline. Using Deutsche Lufthansa, the name that had been used before World War II, the airline plans to regain the fame and popularity it had previously enjoyed in Europe. Indications are that the Convair 340 will probably be used as the twin-engine aircraft and that the Douglas DC-6B or the Lockheed Super Constellation will be ordered. It is also likely that German-built aircraft will be used, once the aircraft industry is fully revived.

Well in advance of its first flight, Lufthansa has already issued its proposed plan of operations, which reads as follows:

Within its first year of service, operations will be confined to Europe (London, Amsterdam, Paris, Copenhagen, Stockholm, Brussels, Zurich) and later in the year will be extended to New York.

Further extensions during 1954 and '55 will stretch to South America via Lisbon, Dakar, Recife, Rio de Janeiro, Sao Paulo, Montevideo and ending at Buenos Aires. Rome and Milan will also be added to the carrier's routes that year.

Fuller service will be given to Africa by 1955 and '56 as Lufthansa flies to Teheran and Istanbul from Barcelona, Madrid and Lisbon.

In 1956 and '57, the airline plans to start operating into the Far East. The proposed route will run from Cairo to Baghdad, Karachi, Calcutta, Bangkok, Hong Kong to Tokyo.

Starting far behind the other airlines, Lufthansa is still expected to give stiff competition to those carriers that now fly into Germany or along routes that will be paralleled by the new airline. Persons inside and outside the aviation field will be watching the effect such competition will have on the other airlines when given by so air-minded a nation as Germany.

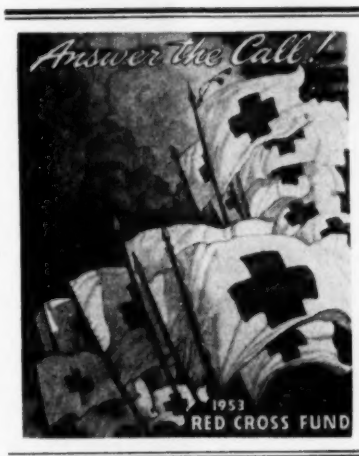
## Outlines Plans for 1954

SAN FRANCISCO—With the upsurge in air cargo as well as in other forms of air transportation expected to continue well into the future, United Air Lines has embarked on a two-year building program that will more than double its overhaul facilities at its maintenance base here. While the new plans call for an additional 160,000 square feet of shop, office and hangar space to be added to UAL's plant by the end of 1954, another program is nearing completion. Begun in 1951, this program called for 56,000 square feet of additional warehouse space considered necessary for the carrier's expanding cargo operations. Further plans for 1954 call for the delivery of 50 Mainliner Convairs and 25 Douglas DC-7s.

One idea that may jell this year is the interline handling of air cargo shipments between UAL and KLM. D. Sj. de Boer, the latter's director of airfreight, has already discussed the topic with United's manager of cargo sales, E. L. Dare. As yet, nothing definite has been reported.

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## Gives New Program for U.S.

NEW YORK—In a statement given directly to AIR TRANSPORTATION, Fred A. Miller, president of U. S. Airlines, has briefly outlined that company's plans for this new year. Uppermost is the determination that the carrier "establish itself as one of the most prominent airfreight lines in the country," said Miller, "and uphold the confidence of the Civil Aeronautics Board and the stockholders."

With this goal to aim for, U. S. Airlines has "embarked on a policy of modifying our aircraft so that they serve a multiple purpose of handling military personnel on contract and common carriage on airfreight" in order to raise the utilization of its aircraft. A new slate of officers and directors has been selected to improve on the various phases of operation, traffic, maintenance, sales and accounting, and the many innovations that have been pioneered by the transcontinental carriers are being adopted for use by U. S. "We are determined," added Miller, "to run our operation in a safe and responsible manner."

These and other ideas, as well as Miller's previous experience with another all-cargo airline (Flying Tiger), are expected to add considerably to the success of U. S. Airlines. Scheduled service has already begun on half the carrier's routes, and the rest will be activated as soon as traffic and equipment warrant it.

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# AIR FRANCE

## MAILBAG MEMOS

Among the facilities provided in our new building is a fine Aviation department library in which I like to make available to teachers and students alike the best of the current Aviation publications—among which I include **AIR TRANSPORTATION**. This publication is of particular significance because in the building of the curricula for our Aviation major, I am including a course on Air Cargo.

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## PROTECTION



Inventive is the word for the three sergeants pictured here who designed the engine shelter also pictured here for protection against the elements. Designed by M/Sgt. Joe Harrelson, right, and built by S/Sgt. John Delownsky, left, and S/Sgt. Dick Corrette, center, the canvas covered shelter fits upon the aerostands to form a complete shelter when bridged from each side of the engine. Credit the Military Air Transport Service for giving added thought to the protection of its increasingly vital cargo carrying equipment.

## TWA-C&S Proposal OK'd

WASHINGTON, D. C.—Final approval by the Civil Aeronautics Board has been granted to Trans World Airlines and Chicago & Southern Air Lines on their interchange proposal. As stated, the proposal was made to provide through one-plane service between New York and Houston by means of an interchange of equipment at St. Louis and/or Indianapolis. Operation of this interchange will mean single plane service between Houston and Pittsburgh and Pittsburgh and Memphis. It will also provide alternative single-plane service between the New York-Houston and New York-Memphis markets.

## Air Cargo Increase Noted

NEW YORK—Air cargo traffic over the North Atlantic grew to a volume 10% higher during the first nine months of 1952 than it was in the comparable period in 1951. As an all-freight airline operating over the North Atlantic and as far as the Middle East, Seaboard & Western Airlines considers itself an authority on the subject. According to the S&W, Western Germany ranked first among European nations to use its all-cargo services; France and Switzerland followed in that order as principal air shippers of west and east-bound products. The fact that Germany took the lead has been offered as proof that manufacturers there are at present finding a ready acceptance of their products in American markets and also that they are capitalizing on the advantages offered by airfreighting to fill demands starting in the 'dollar' area.

## Will Study 'Copter Service

WASHINGTON, D. C.—A new committee has been formed, by the authorization of the directors and members of the Air Transport Association, to study the possibilities of helicopters in regular line haul over their certified routes. In announcing the authorization for the committee, which will be composed of research, operations and traffic executives of the scheduled airlines, Emory S. Land stated, "The advent of the larger helicopters gives great promise of providing a means by which the airlines can continue improvement of their short-haul operations." Land, who was recently re-elected president of the ATA, also said that the new committee will be authorized to analyze and make recommendations at an early date on the reliability of helicopter operations as well as costs and normal traffic and operating problems on certified routes.

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# BOOKS

ANYONE at all, young and old alike, who is interested in aeronautics—the theory of flight, traffic rules in the air, navigation, etc.—will find Merrill E. Tower's **Basic Aeronautics** an easy, interesting and instructive book to read. Fully illustrated for greater clarification, the book omits nothing pertinent to the topic so that the beginner in aeronautics can have a solid foundation with which to start. Weather information and forecasting, helicopters, jobs in aviation, responsibilities of the pilot—these and similar topics together with its many maps and charts, problems and projects to be worked out—make this book on aviation knowledge one of the most important in its field. (Aero Publishers, Inc., Los Angeles 26, Calif.; 252 pages; \$3.70).

What it is lacking in size, **The Air Transportation Industry**, by Stuart G. Tipton, more than amply makes up in content. For this monograph takes the industry as a whole and breaks it up into

its many components and goes into a brief but thorough discussion of each. While further amplification might in some instances be desired, this treatise offers a detailed overall picture as a starting point for further investigation of this bright, new, progressive industry. Complete with an Analytical Index of Occupations that lists the estimated yearly income for each job (for instance, the salary range for an air cargo representative is \$130-\$230 monthly), Tipton's book should prove handy and helpful to most people interested in the air industry. (Bellman Publishing Co., Box 172, Cambridge 38, Mass.; 68 pages; \$2.)

The aircraft worker can now get a small handbook that will slip easily into the pocket of his coveralls and that contains all the latest facts about standard methods, procedures, parts and materials and a listing of hundreds of "AN" and "NAS" standards. Chapters on riveting, bolts and fasteners, assembly and installation, lofting and templates—you'd hardly think this thin volume can hold so much—and the like make it complete in every detail. Fully 28 of the major aircraft factories and suppliers throughout the United

States collaborated in the publication of this booklet. Ask for **Standard Aircraft Handbook**, by Stuart Leavell and Stanley Bungay. (Aero Publishers, Inc., Los Angeles 26, Calif.; 160 pages; \$1.50.)



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ARGENTINA	\$1.51	\$0.76	44	FINLAND	\$0.88	\$0.51	44	NORWAY	\$1.02	\$0.47	44
AUSTRALIA	1.62	1.27	11	FRANCE	1.22	.44	44	PAKISTAN	1.63	.84	22
AUSTRIA	1.05	.49	22	GERMANY	.95	.45	22	PHILIPPINES, Rep. of	1.81	1.26	44
BELGIUM	.98	.43	44	GT. BRITAIN & NO. IRELAND	1.00	.41	22	POLAND	1.06	.52	44
BERMUDA	.76	.13	22	GREECE	1.07	.57	22	PORTUGAL	.71	.44	22
BOLIVIA	1.08	.40	44	GUATEMALA	1.01	.25	44	SAUDI ARABIA	1.56	.77	22
BRAZIL	1.48	.64	44	INDIA	1.70	.96	22	SPAIN	1.21	.45	11
CHILE	1.31	.56	22	IRELAND (EIRE)	.97	.37	11	SWEDEN	.85	.49	44
COLOMBIA	1.21	.40	44	ISRAEL, STATE OF	1.42	.67	22	SWITZERLAND	.92	.46	44
CUBA 8 oz. min.	1.10*	.15	22	ITALY	1.08	.50	44	SYRIA	1.22	.64	44
CZECHO-SLOVAKIA	.88	.48	44	JAPAN	1.27	.91	22	TURKEY	1.15	.57	44
DENMARK	.97	.47	44	LUXEMBURG	.98	.43	44	UNION OF SO. AFRICA	1.31	.94	11
ECUADOR	1.24	.33	44	MEXICO	.64	.18	44	URUGUAY	1.26	.76	44
EGYPT	1.35	.64	22	NETHERLANDS	.89	.44	44	VENEZUELA	1.27	.36	44
ESTONIA (U.S.S.R.)	1.66	.63	22	NICARAGUA	.80	.29	44	YUGOSLAVIA	.87	.52	44

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### INTERNATIONAL AIR MAIL RATES

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ADEN	\$0.25			INDIA	\$0.25	\$0.64	\$0.44	NETHERLANDS	\$0.25		
ARGENTINA	.10	\$0.58	\$0.38	IRELAND (EIRE)	.15	.39	.18	NEW GUINEA	.15	\$0.43	\$0.23
AUSTRIA	.15	.45	.24	ISRAEL	.25	.52	.31	NORWAY	.15	.46	.25
BELGIUM	.15	.42	.21	STATE OF	.25	.65	.45	POLAND	.25		
BERMUDA	.10	.27	.06	JAPAN	.06	.30	.09	SAUDI ARABIA	.15	.43	.22
BRAZIL	.10	.55	.35	MEXICO	{ per oz. }			SPAIN	.15	.49	.68
EGYPT	.15	.52	.31	MOROCCO (FRENCH)	.15			TURKEY	.10	.58	.38
FRANCE	.15	.42	.21					URUGUAY	.15	.43	.22
GT. BRITAIN & NO. IRELAND	.15	.41	.20					YUGOSLAVIA			

For further information on rates and services, contact your local post office

## Intends to Fly Just Cargo

LONDON—Fast on the heels of the announcement made by one carrier of plans to start an all-cargo service over the North Atlantic (Airwork, of London, as reported in January's *AIR TRANSPORTATION*) comes another announcing similar intentions. The airline is a British independent that goes under the name of Hunting Air Transport, which intends to begin its all-cargo operations with DC-4s and hopes eventually to acquire either DC-6As for its use or *Super Constellations*. Both Airwork and Hunting need the approval of the British government for their projects.

## New Service Authorized

ST. PETERSBURG, FLA.—Authorization has been granted by the Civil Aeronautics Board in Washington to Aerovias Sud Americana to inaugurate service at certain newly certificated points. There are located in Columbia, Guatemala, British Honduras, Cuba and El Salvador, and are to be served through the regular use of both Tampa International Airport and Pinellas International Airport, the latter in this city.

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## Cargo Increase Listed

NEW YORK—Air cargo movements are increasing all the time. As proof of this, Seaboard & Western Airlines has announced that its commercial and military operations over both the Atlantic and Pacific Oceans came to 2,990,133 revenue ton miles for the month of November alone. This, added the carrier, represented a 53% gain over its activities for the same month in 1951. Fleet utilization in both divisions averaged 14.2 hours a day.

## UAL Sells Subsidiary

CHICAGO—Mexican airline, Lineas Aereas Mexicanas, S. A., a subsidiary of United Air Lines, has been sold to a new Mexican company known as Lineas Asociadas Mexicanas, S.A. The sale included routes and equipment, the former consisting of about 2500 miles extending from the U. S.-Mexican border to Mexico City, and the latter consisting of seven DC-3s. UAL purchased control of the airline in October, 1943. No reason was given for the sale.

## New Pact Signed by FTL

BURBANK—Pickup and delivery service for air cargo in the province of Ontario, Canada, has been arranged by the Flying Tiger Line. The carrier has contracted with Wallace Transport Ltd., a truck operator in Ontario, to coordinate pickups and deliveries permitting thereby the faster movement, surface-wise, of airfreight between points in Ontario, Fort Erie and Buffalo.

## Flew Trees for Holidays

HAVANA—Except for the lack of snow, tradition was fully upheld with the aid of airfreight. Inasmuch as palm trees do not serve as acceptable substitutes for Christmas trees, more than 1000 evergreen trees were flown here from Miami aboard a special cargo plane belonging to Pan American World Airways for the Yuletide season. The shipment weighed 7260 pounds, and the trees were air shipped in bundles of four and five. Though not native to the climate, the trees held up nicely throughout the holidays.

## Sent Xmas Trees to Korea

MINNEAPOLIS—Among the cargo that flew on one of its newly-inaugurated all-cargo flights to the Orient, reported Northwest Airlines, were 36 small Christmas trees donated by the Y's Men's Clubs of this city. Sent with ornaments and tinsel, the trees were consigned by club representatives to Red Cross field representatives at Pusan in Korea. The donation was given with the idea of bringing some Yuletide cheer into the lives of wounded servicemen in hospitals up near the front lines.

## Flight Saves Tiger Cub

NEW YORK—Part of an air cargo shipment recently flown from here to Holland consisted of 18 pounds of imitation milk that helped save the life of a tiger cub. Flown by KLM Royal Dutch Airlines, in answer to a cable by the Wassenaar Zoo, the emergency shipment went to a tiger cub that had nearly been destroyed by its mother. Now doing fine, thanks to air cargo and KLM, the cub has been named Tet, after the registration letters on the airline's freighter.

## Wants to Fly Cargo to B. C.

MONTREAL — Provided the ATB in Canada approves its application, Canadian Pacific Air Lines will be flying a scheduled airfreight service from this point to Vancouver, B. C., some time this year. CPA's application requests a license to operate a Class 1 scheduled service between the terminals Montreal and Toronto and the terminal Vancouver, and to the intermediate points as well. The airline stated, however, that it does not desire to carry traffic either way between this city and Toronto.

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## International Airline Cargo Rates (including U. S. possessions and territories)

Air cargo rates quoted in this section refer only to points served direct by carriers, or by transshipment aboard aircraft of the same company. Interline agreements among most carriers enable shippers to route their cargoes via connecting airlines to nearly every part of the world. Rates are based on prevailing tariffs, airport to airport (see note). Shippers are warned, however, that these rates are subject to change.

All international rates are quoted on an airport-to-airport service, with the pickup and delivery charges wholly apart. Air carriers whose schedules and rates are included here are indicated by the letter following the airport symbol (see below).

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BUJ—Beaumont, Tex.	MKE—Milwaukee
BOS—Boston	MPB—Minneapolis-St. Paul
BRO—Brownsville, Tex.	MOB—Mobile
BTV—Burlington, Vt.	UL—Montreal
CHS—Charleston, S. C.	MSY—New Orleans
CHI—Chicago	LGA—New York (La Guardia)
CLE—Cleveland	IDL—New York (Idlewild)
CRP—Corpus Christi, Tex.	EWK—Newark
CTB—Cot Bank, Mont.	ORF—Norfolk
DAL—Dallas	NLD—Nuevo Laredo, Mex.
DEN—Denver	OAK—Oakland, Calif.
YIP—Detroit	OMA—Omaha, Nebr.
DLH—Duluth	PAK—Paducah, Ky.
ELD—El Dorado, Ark.	PIA—Peoria, Ill.
ELP—El Paso	PHL—Philadelphia
EVV—Evanville, Ind.	PIT—Pittsburgh
FWA—Fort Wayne, Ind.	POB—Portland, Ore.
FTW—Fort Worth	PVD—Providence
GFK—Grand Forks, N. D.	QY—Sydney, N. S.
GRW—Greenwood, Miss.	STL—St. Louis
BDL—Hartford	SLC—Salt Lake City
HAV—Havana	SAT—San Antonio
HOY—Hot Springs, Ark.	SFO—San Francisco
HOU—Houston	SAV—Savannah
HNL—Honolulu	SEA—Seattle
IND—Indianapolis	SHV—Shreveport, La.
JAN—Jackson, Miss.	GEG—Spokane, Wash.
JAX—Jacksonville	TOI—Toledo, Ohio
MKG—Kansas City, Mo.	SGF—Springfield, Mo.
KIN—Kingston, Jam.	TPA—Tampa
LIT—Little Rock, Ark.	HUF—Terre Haute, Ind.
LAX—Los Angeles	YTO—Toronto, Ont.
	VR—Vancouver, B. C.
	DCA—Washington, D. C.

AIRLINE SYMBOLS	
A—American Airlines	
AE—Aerovias Ecuatorianas	
AF—Air France	
AL—Aerolineas Argentinas	
AV—Avianca	
B—British International Airways	
BC—British Commonwealth Pacific Airlines	
BO—British Overseas Airways Corp.	
CS—Chicago & Southern Air Lines	
C—Colonial Airlines	

E—Eastern Air Lines
EA—Expreso Aereo Interamericano
EL—ELAL (Israel Airlines)
K—KLM Royal Dutch Airlines
L—Lineas Aereas Mexicanas (LAMSA)
LA—Lineas Aereas Costarricenses (LACSA)
LI—Linee Aeree Italiane (Italian Airlines)
LV—Lineas Aeropostal Venezolanas
N—National Airlines
NE—Northeast Airlines
NW—Northwest Airlines
P—Pan American World Airways and Panagra
PH—Philippine Air Lines
R—Riddle Aviation Co.
S—Sabena Belgian Airlines
SS—Scandinavian Airlines System
SW—Seaboard & Western Airlines
SP—Swissair
TA—TACA International Air Lines
T—Trans-Canada Air Lines
TW—Trans World Airlines
U—United Air Lines
W—Western Air Lines

### SPECIAL NOTES

**COMMODITY RATES:** Apply to airlines.

**AF:** Valuation charge is applicable only on shipments equal to or more than \$7.48 per pound.

**K:** Valuation charge is only on shipments with a declared valuation in excess of \$7.48 per lb.

**L:** Shipments of less than 22 lbs. are sent air express.

**P:** Valuation charge is only on shipments with a declared valuation in excess of \$7.48 per lb.

**PH:** To any destination in the Philippines served from Manila by PAL (where routing is via PAL from San Francisco) add 10¢ per pound to rates shown as applying to Manila.

**SW:** Special rates for shipments of 1000 lbs. and over.

**T:** More economical rates are offered for bulk cargo. There is a basic rate for cargoes 25 pounds and less, between 25 pounds and 100 pounds, and over 100 pounds. Consult the airline direct.

**TC:** Cheaper "deferred" rate available. Contact airline direct.

### RATE SYMBOLS

\* This involves onward carriage by another airline.

\*\* Per \$100 (Canadian Currency) value, pro-rata.

† Minimum charge for this shipment is that for 25 lbs.

‡ Rate of 25 lbs. or less.

§ Minimum weight 50 lbs.

¶ Minimum charge per shipment \$3.00.

\*\* Minimum charge per shipment \$4.00.

†† Minimum charge per shipment \$7.00.

‡‡ Minimum charge per shipment \$6.00.

§§ Daily freighter service.

¶¶ Truck to Miami.

£ Canadian Currency.

Destination	Airport and Airline	RATES (See Note)				Depart
		Per 100 Lbs.	Per 100 Lbs. (Over 100 Lbs.)	Per \$100 Value		
Abidjan, Ivory Coast	IDL AF	1.73	1.30	.25	T,Th,Sa	
Abo, Finland	IDL SS	1.71	1.28	.25	T,Sa	
Accra, Br. Gold Coast	IDL P	1.73	1.30	.25	Sa	
"	BOS BO	1.71	1.28	.25	Sa	
"	IDL BO	1.73	1.30	.25	Dly	
"	IDL AF	1.73	1.30	.25	Dly	
"	BOS AF	1.71	1.28	.25	T	
Addis Ababa, Ethiopia	IDL BO	2.19	1.64	.25	Dly	
Aden, Aden	BOS BO	2.17	1.63	.25	Th,Sa	
"	IDL BO	2.19	1.64	.25	Dly	
Ajaccio, Corsica	IDL AF	2.17	1.63	.25	Th,Sa	
"	BOS AF	1.71	1.28	.25	T	
Alberville, Belgian Congo	IDL S	2.03	1.52	.25	Su,T,Th,Sa	
Alexandria, Egypt	IDL LI	1.64	1.23	.25	W	
Algiers, Algeria	IDL TW	1.33	1.00	.25	Th	
"	BOS AF	1.33	1.00	.25	Dly	
"	BOS TW	1.32	.99	.25	T	
"	CHI TW	1.42	1.06	.25	Th	
"	PHL TW	1.36	1.02	.25	Th	
Aleppo, Syria	IDL AF	1.76	1.32	.25	T,Th,Sa	
"	BOS AF	1.73	1.31	.25	Sa	
Amsterdam, Neth.	IDL S	1.17	.88	.20	Sa,Su,T,Th	
"	IDL BO	1.17	.88	.20	Dly	
"	BOS BO	1.15	.86	.20	Th,Sa	
"	MIA BO	1.28	.98	.20	W,Sa	
"	IDL P	1.17	.88	.20	M,Th	

Destination	Airport and Airline	RATES (See Note)				Depart
		Per 100 Lbs.	Per 100 Lbs. (Over 100 Lbs.)	Per \$100 Value		
Amsterdam, Cont'd	BOS P	1.15	.86	.20	Th	
"	IDL SS	1.17	.88	.20	Dly	
"	IDL SR	1.17	.88	.20	Su,W,F,Sa	
"	IDL AF	1.17	.88	.20	Dly	
"	BOS AF	1.15	.86	.20	T,Sa	
"	IDL K	1.17	.88	.20	Dly	
"	UL K	1.12	.84	.22	F,Su,W	
Anchorage, Alaska	SEA NW	.33	.29	.15	Dly	
"	MSP NW	.33	.29	.15	Dly	
Antigua, B.W.I.	IDL P	.34	.24	.15	Su,W	
"	MIA P	.25	.18	.15	Su,W	
"	MIA BO	.25	.18	.15	W,Sa	
"	IDL BO	.34	.24	.15	M,W,Sa	
Antilla, Cuba	MIA P	1.13	.61	.20	Su,Th	
Antofagasta, Chile	MSY P	1.19	.68	.20	Su,W	
"	HOU P	1.22	.71	.25	T,Sa	
"	BRO P	1.23	.71	.25	Sa	
"	LAX P	1.35	.85	.25	Sa	
Araquaj, Brazil	IDL P	1.84	1.54	.25	Dly except M	
"	MIA P	1.26	1.26	.25	T,Th,Sa	
"	MSY P	1.53	1.53	.25	Su	
"	HOU P	1.68	1.68	.25	Sa,T,Th	
"	BRO P	1.60	1.60	.25	Sa,T,Th	
"	LAX P	1.90	1.90	.25	M	
Arecibo, P. R.	MIA R	.12	.10	.15	Dly	
"	LGA R**	.20	.17	.15	Dly	
Arequipa, Peru	MIA P	1.00	.53	.20	M,Th,Su	
"	MSY P	1.06	.60	.30	Su	
"	HOU P	1.09	.63	.30	W,Sa,Su	

Destination	Airport and Airline	RATES (See Note)				Depart
		Per 100 Lbs.	Per 100 Lbs. (Over 100 Lbs.)	Per \$100 Value		
Arequipa, Cont'd	BRO P	1.09	.63	.30	Sa,Su,W	
"	LAX P	1.22	.77	.20	M,Th	
Arica, Chile	MIA P	1.06	.57	.20	Su	
"	MSY P	1.12	.64	.20	Sa	
"	HOU P	1.15	.67	.20	Sa	
"	BRO P	1.15	.67	.20	Sa	
"	LAX P	1.28	.81	.20	Sa	
Armenia, Colombia	MIA P	.58	.28	.15	M,Th,Sa	
"	MSY P	.60	.35	.15	W,Sa	
"	HOU P	.63	.38	.15	T,Sa	
"	BRO P	.63	.38	.15	T,Sa	
Aruba, N.W.I.	MIA K	.30	.22	.15	Dly	
Asmara, Eritrea	IDL BO*	2.04	1.53	.25	M,F,W	
"	BOS BO	2.02	1.52	.25	Dly	
Astoria, Paraguay	BRO B	1.50	.88	.25	M,F	
"	CHI B	1.50	.89	.25	M,F	
"	CRP B	1.49	.87	.25	M,F	
"	DAL B	1.50	.88	.25	M,F	
"	ETW B	1.50	.88	.25	M,F	
"	HOU B	1.49	.87	.25	M,F	
"	LRD B	1.55	.90	.25	M,F	
"	MIA B	1.39	.77	.25	M,F	
"	SAT B	1.50	.88	.25	M,F	
Athens, Greece	IDL LI	1.59	1.19	.25	M,W,F	
"	IDL BO	1.61	1.21	.25	Dly	
"	MIA BO	1.72	1.31	.25	Dly	
"	BOS BO	1.61	1.21	.25	Dly	
"	IDL AF	1.61	1.21	.25	W,Th	
"	BOS AF	1.59	1.19	.25	T	
"	IDL K	1.61	1.21	.25	W,F	
"	UL K	1.56	1.17	.25	W,F	
"	IDL EL	1.61	1.21	.25	T,Sa	
"	IDL SS	1.61	1.21	.25	T,P	
"	IDL TW	1.61	1.21	.25	Dly except T	
"	BOS TW	1.59	1.19	.25	M,Th	
"	CHI TW	1.68	1.27	.25	Dly except T	
"	PHL TW	1.63	1.22	.25	Dly except T	
"	YIP TW	1.66	1.25	.25	Dly except T	
"	IDL S	1.61	1.21	.25	Sa,Su,T,Th	
"	IDL SR	1.61	1.21	.25	Su,W,F,Sa	
"	IDL SW	1.28	.93	.25	T	
Auckland, N. Z.	LAX P	1.75	1.32	.25	T	
"	SFO P	1.75	1.32	.25	T	
"	PDX P	1.75	1.32	.25	T	
"	SEA P	1.75	1.32	.25	M	
"	SFO BC	2.03	1.52	.25	F	
"	HNL BC	1.39	1.04	.20	P	
"	VR BC	2.04	1.53	.25	P	
"	BOS BO	3.84	2.88	.25	Th,Sa	
"	IDL BO	3.86	2.89	.25	Dly	
Baghdad, Iraq	IDL BO	1.89	1.42	.25	Dly	
"	BOS BO	1.87	1.41	.25	Th,Sa	
"	IDL K	1.89	1.42	.20	T,W,Sa	
"	UL K	1.85	1.39	.25	W	
Bahia, Brazil (See San Salvador)	IDL BO	2.00	1.50	.25	Dly	
Bahrain, Arabia	BOS BO	1.98	1.48	.25	W,Sa	
Bahra, Canal Zone	MIA P	.39	.19	.20	Dly	
"	MSY P	.45	.26	.20	Dly except M	
"	HOU P	.48	.29	.20	Dly	
"	BRO P	.48	.29	.20	Sa,T,Th,Sa	
"	LAX P	.61	.43	.20	M,Th,Sa	
Bamako, Fr. W. Afr.	IDL AF	1.73	1.30	.25	Th	
"	BOS AF	1.71	1.28	.25	T	
Bangkok, Siam	IDL P	2.78	2.08	.25	Su,T,Th	
"	PDX P	2.70	2.03	.25	M,W,F	
"	SEA P	2.70	2.03	.25	M,W,F	
"	LAX P	2.70	2.03	.25	M,W,F	
"	BOS P	2.76	2.07	.25	Su,Th,T	
"	SFO P	2.70	2.03	.25	M,W,F	
"	IDL SS	2.78	2.08	.25	Th,Sa	
"	IDL AF	2.78	2.08	.25	Th	
"	BOS AF	2.76	2.07	.25	T	
"	IDL BO	2.78	2.08	.25	Dly	
"	BOS BO	2.76	2.07	.25	Th,Sa	
"	IDL K	2.78	2.08	.33	Dly	
"	UL K	2.74	2.05	.27	Su,W,F	
Bangui, Fr. E. Afr.	IDL S	2.03	1.52	.25	Sa,Su,T,Th	
"	IDL AF	2.03	1.52	.25	T	
"	BOS AF	2.01	1.51	.25	T	
Baracoa, Cuba	MIA P	.18	.12	.05	Dly	
Barbados, B.W.I.	IDL BO	.44	.20	.15	Dly	
"	MIA BO	.33	.23	.15	W,Sa	
Barcelona, Spain	IDL AF	1.27	.95	.25	M,T,Th	
"	BOS AF	1.27	.95	.25	T	
"	IDL S	1.27	.95	.25	Sa,Su,T,Th	
"	BOS P	1.27	.95	.20	Su	
"	IDL P	1.25	.93	.20	Su	
"	IDL SR	1.27	.95	.25	Su,W,F,Sa	
"	IDL BO	1.27	.95	.25	Dly	
"	MIA BO	1.38	1.05	.30	W,Sa	
"	BOS BO	1.25	.93	.20	Th,Sa	
Barcelona, Venezuela	MIA K	.41	.26	.15	W,F,M	
"	UL K	.56	.39	.15	W,F,M	
"	IDL K	.51	.35	.15	W,F,M	
"	MIA P	.41	.24	.15	Dly except T	
"	IDL P	.51	.35	.15	T,Sa	

**INTERNATIONAL AIR CARGO RATE TABLES — Continued**

RATES (See Note)					RATES (See Note)					RATES (See Note)							
Destination	Airport and Airline	Per Lb. (Under 100 Lbs.)	Per Lb. (Over 100 Lbs.)	Per \$100 Value	Depart	Destination	Airport and Airline	Per Lb. (Under 100 Lbs.)	Per Lb. (Over 100 Lbs.)	Per \$100 Value	Depart	Destination	Airport and Airline	Per Lb. (Under 100 Lbs.)	Per Lb. (Over 100 Lbs.)	Per \$100 Value	Depart
Barranquilla, Col.	MIA P	.54	.28	.15	T,Th,Sa	Brasaville, Fr. Eq. Af.	IDL AF	2.03	1.52	.25	W,Sa	Cayo Mambi, Cuba	MIA P	.18	.12	.05	Dly
"	IDL P	.64	.37	.15	Sa,M,Th	"	BOS AF	2.01	1.51	.25	Sa	Chemal, Mexico	MIA P	.31	.16	.15	Su,T,Th
"	MSY P	.60	.35	.15	Dly except T	"	IDL K	2.03	1.52	.33	T,Sa	"	BRO P	.31	.21	.15	Su,T,Th
"	HOU P	.60	.35	.15	Dly	Bremen, Germany	IDL SS	1.24	.93	.25	F	Chihuahua, Chih., Mex.	LAX P	.47	.36	.15	M,W,F
"	BRO P	.63	.38	.15	Dly	"	IDL P	1.24	.93	.20	M,Th,Sa	"	ELP L	.10	.08	.25	Dly
Barranquilla, Col.	LAX P	.77	.57	.15	M,Th,Sa	Bridgetown, Barbados	BOS P	1.22	.91	.20	Th	Christiansand, Norway	IDL K	1.24	.93	.20	Dly except Sa
"	MIA P	.39	.19	.20	Dly	"	IDL S	.49	.33	.15	**Th	"	UL K	1.20	.90	.20	Su,W,F
"	IDL P	.49	.28	.20	Su,M,W,Th	Brisbane, Aust.	TO T	.49	.33	.15	**Th	C. del Carmen, Mexico	IDL S	1.24	.93	.25	Sa,Su,T,Th
"	MSY P	.45	.26	.20	Dly except M	"	IDL AF	3.44	2.58	.25	Sa	"	MIA P	.31	.16	.15	Dly
"	HOU P	.48	.29	.20	Dly	Brussels, Belgium	BOS AF	3.42	2.57	.25	Sa	Ciudad Juarez, Chih., Mex.	MSY P	.27	.15	.15	Dly except M
"	BRO P	.48	.29	.20	Sa,Su,T,Th	"	IDL S	1.17	.88	.20	Sa,Su,T,Th	"	MEX L	.20	.14	.25	Dly
"	LAX P	.62	.43	.20	Sa,M,Th	"	BOS P	1.17	.88	.20	T,F	Ciudad Trujillo, D. R.	IDL P	.25	.21	.05	Dly
"	MIA K	.39	.19	.15	Sa,W,F,M	"	IDL SW	.92	.73	.20	.....	"	MIA P	.15	.12	.05	Dly
"	UL K	.54	.33	.15	M,W,F	"	IDL AF	1.17	.88	.20	Dly	"	UL K	.15	.12	.15	Sa,M,Th,Sa
"	IDL K	.49	.28	.15	M,W,F,Sa	"	BOS AF	1.15	.86	.20	T,Sa	Cochabamba, Bolivia	MIA P	1.19	.68	.15	Sa,Su,Th
Basankusu, Belgian Congo	IDL S	2.03	1.52	.25	Sa,Su,T,Th	"	IDL K	1.17	.88	.20	Dly	"	MSY P	1.22	.71	.15	Sa,Su,F,W
Basle, Switzerland	IDL SR	1.24	.93	.25	Su,W,F,Sa	Bucaramanga, Colombia	UL K	1.12	.84	.20	W,F,Sa	"	BRO P	1.22	.71	.15	Sa,Su,F,W
"	IDL BO	1.24	.93	.20	Dly	"	MIA P	.54	.28	.15	Dly	"	LAX P	1.35	.85	.15	Sa,M,Th
"	MIA BO	1.36	1.23	.20	W,Sa	"	IDL P	.64	.37	.15	M,Th,Sa	Colonge, Germany	IDL S	1.21	.91	.20	Su,T,Th,Sa
"	BOS BO	1.22	.92	.20	Th,Sa	"	HOU P	.63	.38	.15	Dly	Colombia, Any Destination other than those named herein	MIA P	.65	.32	.15	Sa,Su,T,Th
Basra, Iraq	IDL K	1.52	1.45	.25	T,F	Buenos Aires, Argentina	LAX P	1.54	.89	.25	Dly except M	"	MSY P	.73	.39	.15	Dly except M
"	MIA BO	2.05	1.56	.25	W,Sa	"	MIA AV	.54	.28	.15	Th	"	HOU P	.74	.42	.15	Dly
"	BOS BO	1.91	1.44	.25	Th,Sa	"	MSY P	1.53	.90	.25	Dly except M	Colombo, Ceylon	BRO P	.74	.42	.15	Dly except Su
"	IDL BO	1.93	1.45	.25	Dly	"	HOU P	1.56	.93	.25	Su,T,Th	"	IDL BO	2.51	1.89	.25	Dly
"	IDL TW	1.93	1.45	.25	Su,T,F	"	BRO P	1.54	.93	.25	Th	"	BOS BO	2.49	1.87	.25	Th,Sa
"	BOS TW	1.91	1.44	.25	Su,T,F	"	LAX P	1.57	.94	.25	M,W,F	Conakry, Fr. W. Af.	IDL AF	1.56	1.12	.20	Sa
"	PHL TW	1.95	1.46	.25	Sa,T,F	"	BRO B	1.57	.94	.25	M,W,F	"	BOS AF	1.56	1.12	.20	Sa
"	IDL SR	1.99	1.42	.25	Su,W,F,Sa	"	CRP B	1.56	.93	.25	M,W,F	Concepcion, Bolivia	MIA P	1.16	.63	.20	Sa,Th
"	IDL P	1.93	1.45	.25	Su	"	DAL B	1.59	.95	.25	M,W,F	"	MSY P	1.22	.70	.25	Sa,Th
"	BOS P	1.91	1.44	.25	Su	"	FTW B	1.59	.95	.25	M,W,F	"	HOU P	1.25	.73	.25	Sa,Su,W
Batavia, Ceylon	IDL AF	1.27	.94	.20	Dly	"	HOU B	1.56	.93	.25	M,W,F	"	BRO P	1.25	.73	.25	Sa,T
"	IDL AF	1.25	.94	.20	T,Sa	"	LKD B	1.61	.95	.25	M,W,F	"	LAX P	1.39	.87	.25	Su,T
Bayamo, Cuba	MIA P	.10	.09	.05	Dly	"	SAT B	1.61	.95	.25	M,W,F	Copenhagen, Den.	IDL SS	1.24	.93	.25	Dly
Beirut, Lebanon	IDL AF	1.72	1.29	.25	Sa,Su,M,T,Th	Bulawayo, S. Rhodesia	IDL BO	2.03	1.52	.25	Dly	"	IDL SR	1.24	.93	.25	Sa,W,F,Sa
"	IDL SR	1.72	1.29	.25	Th	"	IDL LI	2.01	1.51	.25	Th,Sa	"	IDL K	1.25	.94	.20	Dly
"	IDL P	1.72	1.29	.25	Su,W	Cagliari, Italy	IDL LI	1.46	1.09	.25	Dly except Su	"	UL K	1.20	.90	.20	Dly
"	BOS P	1.68	1.26	.25	Su,W	Caibarien, Cuba	MIA P	.14	.09	.05	Dly	"	BOS P	1.22	.92	.20	Su,T,Th
"	IDL K	1.72	1.29	.25	Sa,Su,M,T,F	Cairo, Egypt	IDL BO	1.72	1.29	.25	Sa,Su,T,Th	"	IDL P	1.24	.93	.20	Su,T,Th
"	UL K	1.68	1.26	.25	F,Sa	"	MIA BO	1.72	1.29	.25	W,Sa	Coquilhatville, Belgian Congo	IDL S	2.03	1.52	.25	Sa,Su,T,Th
"	IDL P	1.72	1.29	.25	Dly	"	BOS BO	1.70	1.27	.25	Th,Sa	Costermansville, Belgian Congo	IDL S	2.03	1.52	.25	Sa,Su,T,Th
"	BOS BO	1.68	1.26	.25	M,W,F,Sa	"	IDL AF	1.72	1.29	.25	Su,W,Th,F	Conotou, Fr. W. Afr.	IDL AF	1.73	1.30	.25	Sa,T
Belem, Brazil	IDL P	.94	.68	.20	Dly ex. M,Th	"	IDL AF	1.70	1.27	.25	Sa,T	"	BOS AF	1.71	1.28	.25	T
"	MIA P	.89	.61	.20	T,Sa	"	IDL K	1.72	1.29	.25	T,W,Th,F	Cristofol, Canal Zone	MIA P	.41	.21	.15	Dly
"	MSY P	1.28	.81	.25	Sa,T	"	IDL K	1.68	1.26	.25	W,F	"	MSY P	.47	.28	.15	Dly except M
"	HOU P	1.38	.85	.25	Sa,Th	"	IDL SS	1.72	1.29	.25	M,Sa	"	HOU P	.50	.31	.15	Dly except Su
"	BRO P	1.30	.81	.25	Th	"	IDL TW	1.72	1.29	.25	Th	"	BRO P	.50	.31	.15	Dly
"	LAX P	1.55	1.56	.25	F	"	BOS TW	1.70	1.27	.25	Th	"	LAX P	.63	.45	.15	M,Th,Sa
"	IDL AL	.94	.68	.20	F	"	CHI TW	1.80	1.35	.25	Sa	Cuenca, Ecuador	IDL P	.54	.28	.15	Dly
Belfast, N. Ireland	IDL BO	1.07	.80	.20	Dly	"	LAX TW	2.00	1.51	.25	Dly	"	MIA P	.64	.37	.15	Dly
"	MIA BO	1.19	.91	.20	W,Sa	"	PHL TW	1.74	1.31	.25	Dly	"	MSY P	.60	.35	.15	Dly except M
"	BOS BO	1.05	.79	.20	Th,Sa	"	IDL SR	1.72	1.29	.25	Su,W,F,Sa	"	HOU P	.63	.38	.15	Dly
Belgrade, Yugoslavia	IDL SR	1.82	1.14	.25	Sa,W,F,Sa	"	IDL P	1.72	1.29	.25	Dly	"	BRO P	.63	.38	.15	Dly except Su
"	IDL BO	1.82	1.14	.25	Dly	Calcutta, India	IDL P	2.49	1.87	.25	Su,T	"	LAX P	.77	.52	.15	Sa,M,Th
"	MIA BO	1.80	1.12	.25	Th,Sa	"	BOS P	2.47	1.86	.25	Sa,T	Curacao, N.W.I.	IDL P	.40	.31	.20	Dly except M
Beise, Br. Hond.	MSY TA	.33	.17	.15	F,T	"	PDX P	2.94	2.21	.25	M,F	"	MIA P	.30	.22	.20	Su,T,W,F
"	MEX TA	.33	.17	.15	F,T	"	SEC P	2.94	2.21	.25	W	"	IDL K	.40	.31	.15	Dly
"	IDL BO	.41	.32	.15	F,Sa,Su	"	SFO P	2.94	2.21	.25	M,Th	"	MIA K	.30	.22	.15	Dly
"	MIA BO	.38	.24	.15	W,Sa	"	LAX P	2.94	2.21	.25	M,Th	"	UL K	.45	.35	.15	M,F,W
Bello Horizonte, Brazil	IDL P	1.64	1.64	.25	Dly	"	IDL SS	2.49	1.87	.25	M,Th,Su	Curitiba, Brazil	IDL P	1.68	1.68	.25	Dly
"	MIA P	1.44	1.44	.25	M,Th,Sa	"	IDL K	2.49	1.87	.25	Su,W	"	MIA P	1.46	1.46	.25	T,Th,Sa
"	MSY P	1.56	1.56	.25	Sa,M,W,F	"	UL K	2.45	1.84	.25	Sa	"	MSY P	1.60	1.60	.25	W,F
"	HOU P	1.77	1.77	.25	Sa,T,Th	"	IDL BO	2.49	1.87	.25	Su,W	"	HOU P	1.83	1.83	.25	T,Th,Su
"	BRO P	1.69	1.69	.25	T,Th	"	BOS AF	2.49	1.87	.25	Sa,Su,M,T,Th	"	BRO P	1.75	1.75	.25	T,Th
"	LAX P	1.99	1.99	.25	M	Calgary, Alb., Canada	LGA T	.32	.28	.10	Dly	"	LAX P	2.06	2.06	.25	M
"	IDL BO	1.30	.98	.25	Dly	Call, Colombia	MIA P	.54	.28	.20	Dly	Dacca, Pakistan	IDL BO	2.54	1.91	.25	Dly
"	IDL SR	1.30	.98	.25	Su,W,F,Sa	"	IDL P	.64	.37	.20	Dly except T	"	BOS BO	2.52	1.89	.25	W,Sa
Bermuda	LGA C	.15	.10	.10	Dly	"	MSY P	.60	.35	.20	Dly except M	Dakar, Senegal, F. W. Africa	IDL P	1.39	1.04	.25	M,Th
"	DCA C	.15	.10	.10	Sa,M	"	HOU P	.63	.38	.20	Dly	"	BOS P	1.37	1.03	.25	M,Th
"	IDL P	.20	.10	.05	Dly	"	BRO P	.63	.38	.20	Dly except Su	"	IDL AF	1.39	1.04	.25	Dly except Th
"	BOS P	.20	.10	.05	Dly	"	LAX P	.76	.52	.20	Dly except F	Damascus, Syria	IDL P	1.72	1.29	.25	Su,T,W,Th
"	UL T	.25	.15	.05	Th,F,Sa,Su	Camaguey, Cuba	MIA AV	.54	.28	.20	Sa,M,W,Th	"	BOS P	1.70	1.27	.25	Sa,T,W,Th
"	YTO T	.25	.15	.05	Th,F,Sa,Su	Campeche, Mexico	IDL P	.12	.06	.025	Dly	"	IDL AF	1.72	1.29	.25	T,F
"	BOS BO	.20	.10	.05	Th,Sa	"	MIA P	.28	.14	.15	Dly	"	BOS AF	1.70	1.27	.25	T
"	MIA BO	.25	.19	.05	W,Sa	"	MSY P	.25	.13	.15	Dly ex. M,Th	"	MIA BO	1.84	1.39	.25	W,Sa
"	IDL BO	.20	.10	.05	Su,F,Sa	Cananea, Son., Mex.	HOU P	.30	.22	.15	Dly	"	BOS BO	1.70	1.27	.25	Th,Sa
Berne, Switzerland	IDL SR	1.24	.93	.25	Su,W	Canton Island	MEX L	.23	.19	.25	Dly	"	IDL SS	1.72	1.29	.25	Sa
Birmingham, England	IDL AF	1.08	.81	.20	Sa,M,W	"	LAX P	1.23	.93	.20	Th	"	IDL K	1.72	1.29	.25	T,F
"	BOS AF	1.06	.80	.20	Th,Sa	"	SFO P	1.23	.93	.20	Su,Th	"	UL K	1.68	1.26	.25	F
"	BRO BO	1.08	.81	.20	Dly	"	PDX P	1.23	.93	.20	Su,Th	"	IDL SW	1.43	1.10	.20	.....
Bilantyre, Nyasaland	IDL BO	2.03	1.52	.25	Dly	"	SEA P	1.23	.93	.20	Su,Th	Dar-es-Salaam, Tanganyika	IDL BO	2.03	1.52	.25	Dly
"	BOS BO	2.01	1.51	.25	W,Sa	"	VR BC	1.33	1.00	.20	M, alt. Th,F	"	MIA BO	2.15	1.62	.25	W,Sa
Bloemfontein, So. Africa	IDL BO	2.11	1.58	.25	Dly	Capetown, U. S. Af.	IDL BO	2.32	1.74	.25	Dly	"	BOS BO	2.01	1.51	.25	Th,Sa
"	BOS BO	2.09	1.57	.25	W,Sa	Caracas, Venezuela (See La Guaira)	BOS BO	2.30	1.73	.25	Th,Sa	Darwin, Australia	IDL BO	3.16	2.37	.25	Dly
Bobo, Dioulouso, Fr. W. Afr.	IDL AF	1.73	1.30	.25	Sa,T	Cartagena, Colombia	MIA P	.46	.23	.15	Su,M,W,Th	"	BOS BO	3.14	2.36	.25	Th,Sa
"	BOS AF	1.71	1.28	.25	Sa,T	"	IDL P	.56	.32	.15	Dly except T	Delhi, India	IDL BO	2.39	1.80	.25	Dly
Bogota, Colombia	MIA P	.54	.28	.20	Dly	"	MSY P	.52	.30	.15	Dly except M	"	MIA BO	2.51	1.90	.25	W,Sa

**INTERNATIONAL AIR CARGO RATE TABLES — Continued**

RATES (See Note)					RATES (See Note)					RATES (See Note)							
Destination	Airport and Airlines	Per Lb. Over 100 Lbs.	Per Lb. Over 100 Lbs.	Per \$100 Value	Depart	Destination	Airport and Airlines	Per Lb. Over 100 Lbs.	Per Lb. Over 100 Lbs.	Per \$100 Value	Depart	Destination	Airport and Airlines	Per Lb. Over 100 Lbs.	Per Lb. Over 100 Lbs.	Per \$100 Value	Depart
Diego Suarez, Madag.	IDL AF	2.92	2.25	25	Sa,T	Glasgow, Scotland	IDL SS	1.03	78	20	Dly	Havana, Cont'd	FTW B	.19	16	05	M,W,F,Su
Djibouti, Fr.	BOS AF	2.90	2.18	25	T	"	IDL K	1.03	77	20	Dly ex. W,Su	"	HOU B	.18	15	05	M,W,F,Su
Douala, Cam.	IDL AF	2.12	1.59	25	F	"	UL T	.99	75	20	Sa,M,Th	"	LRD B	.24	19	05	M,W,F,Su
Fr. W. Africa	BOS AF	2.03	1.52	25	T,Th,F,Su	"	IDL P	1.03	77	20	W,M	"	SAT B	.20	17	05	M,W,F,Su
Dublin, Eire	BOS AF	2.01	1.51	25	T,Sa	"	BOS P	1.01	76	20	W,M	"	MIA BO	.18	12	05	Dly
Durango, Dgo., Mex.	UL K	.98	.74	20	Su	Gothenburg, Sweden	IDL SS	1.24	93	25	Dly	"	IDL AL	.18	14	05	F
Durham, So. Afr.	IDL K*	1.03	.77	22	Su,Th	Granada, B.W.I.	IDL BO	.43	30	20	Dly	"	IDL BO	.18	14	05	M,W,Sa
Dusseldorf, Ger.	ELP L	.13	.11	25	M,W,F	"	MIA BO	.34	24	20	W,Sa	"	IDL SS	1.36	1.02	25	Dly
"	IDL BO	2.15	1.61	25	Dly	Guadalajara, Mex.	HOU P*	.23	17	15	Dly	"	BOS P	1.21	.91	20	Sa,Th
"	BOS BO	2.13	1.60	25	Th,Sa	"	BRO P	.21	13	15	Dly except Su	"	IDL P	1.24	.93	20	Sa,Th
"	IDL SS	1.21	.91	20	Sa,Su,T,Th	Guadeloupe, F.W.I.	LAX P	.30	25	15	Dly	"	IDL K	1.36	1.02	20	Dly
"	IDL S	1.21	.91	20	Sa,Su,T,Th	"	IDL BO	.35	25	20	Dly	Hermosillo, Mexico	LAX P	.18	.09	15	Dly
"	IDL K	1.21	.91	20	Dly except Su	"	MIA BO	.28	19	20	W,Sa	"	MIA P	1.15	.90	05	Dly
"	UL K	1.17	.88	20	W,F,Su	Guantanamo, Cuba	LAX P	2.00	1.51	25	M,F	"	IDL P	3.10	2.32	25	Sa,T,Th
"	IDL AF	1.21	.91	20	Dly except F	"	SFO P	2.00	1.51	25	M,F	"	BOS P	3.08	2.31	25	Sa,T,Th
"	BOS AF	1.19	.89	20	T,Sa	Guatemala City, Guatemala	PDX P	2.00	1.51	25	M,F	"	PDX P	2.49	1.87	25	M,W,F
"	BOS P	1.19	.89	20	T,Th	"	SFC P	2.00	1.51	25	M,F	"	LAX P	2.49	1.87	25	M,Th
"	IDL P	1.21	.91	20	T,Th	"	MIA P	2.00	1.51	25	M,F	"	SFO P	2.49	1.87	25	M,Th
"	IDL SR	1.21	.91	20	Sa,W,F,Sa	"	MIA P	.18	.12	.05	Three Dly	"	SFO PH	2.49	1.87	25	W,Sa
Edmonton, Alberta, Canada	LGA T	.32	.28	10	Dly	"	MSY P	.39	19	15	M,Th	"	IDL BO	3.10	2.32	25	Dly
"	CTB W	.07	.05	10	Dly	"	HOU P	.34	18	15	Dly ex. M,Th	"	BOS BO	3.08	2.31	25	Th,Sa
"	MPS W	.22	.16	10	Dly	"	BRO P	.33	23	15	Dly	"	IDL AF	3.10	2.32	25	Sa
"	LGA NW	.40	.30	10	Sa,T	"	LAX P	.47	34	15	Sa,M,Th	"	LAX P	3.08	2.31	25	Sa
"	CHI NW	.30	.23	10	Sa,T	"	MSY TA	.35	19	15	Dly	Honolulu, T. H.	LAX P	.71	.57	15	Dly except M
"	MSB NW	.26	.20	10	Sa,T	"	MEX TA	.17	.12	10	M,T,W,Th,F	"	SFO P	.71	.57	15	Dly
Elizabethville, Belgian Congo	IDL S	2.03	1.52	25	Sa,Su,T,Th	Guayaquil, Ecuador	MIA P	.65	35	15	Dly except Sa	"	PDX P	.71	.57	15	Sa
Entebbe, Uganda	IDL BO	2.03	1.52	25	Dly	"	MSY P	.71	42	15	Dly ex. M,Sa	"	SEA P	.71	.57	15	Sa
"	MIA BO	2.03	1.52	25	W,Sa	"	HOU P	.74	45	15	Dly except F	"	SFO U	.71	.57	15	Dly
"	BOS BO	2.01	1.51	25	Th,Sa	"	BRO P	.74	45	15	Su,T,Th	"	LAX U	.91	.72	15	Dly
"	IDL S	2.03	1.52	25	Sa,Su,T,Th	"	LAX P	.57	50	20	M,Th	"	CHI U	.91	.72	15	Dly
Emeraldas, Ecuador	MIA P	.67	.36	10	T	"	MIA AE	.55	29	15	W,F	"	CLE U	.91	.72	15	Dly
"	MSY P	.73	.43	15	T	"	BRO B	.75	46	15	M,F,Sa	"	MKE A	.91	.72	15	Dly
"	HOU P	.76	.46	15	M	"	CRP B	.74	45	15	M,F,Sa	"	YIP U	.94	.74	15	Dly
"	BRO P	.76	.46	15	M	"	DAL B	.77	47	15	M,F,Sa	"	LGA U	1.00	.78	15	Dly
"	LAX P	.89	.60	20	M	"	FTW B	.77	47	15	M,F,Sa	"	DCA U	.99	.78	15	Dly
Fairbanks, Alaska	SEA P	.40	.15	15	Dly	"	HOU B	.74	45	15	M,F,Sa	"	PHL U	.99	.78	15	Dly
Florianopolis, Brazil	IDL P	1.70	1.70	25	Dly except M	"	LRD B	.80	49	15	M,F,Sa	"	EWK U	1.00	.78	15	Dly
"	MIA P	1.48	1.48	25	M,Th,Sa	"	SAT B	.77	47	15	M,F,Sa	"	BOL U	1.01	.79	15	Dly
"	MSY P	1.64	1.64	25	W,F	Haifa, Israel	IDL S*	1.72	1.29	25	Sa,Su,T,Th	"	CHI NW	.91	.72	15	T,F
"	HOU P	1.87	1.87	25	Su,T,Th	Haiphong, Indo-China	IDL AF	3.10	2.32	25	Sa	"	YIP NW	.94	.74	15	F,T
"	BRO P	1.79	1.79	25	T,Th	Halifax, N. S.	BOS AF	3.08	2.31	25	Sa	"	MKE NW	.91	.72	15	F,T
"	LAX P	2.08	2.08	25	M	Hamburg, Germany	BOS T	.08	.0755	10	Dly	"	MPS NW	.89	.72	15	F,T
Fort Archambault, Fr. E. Afr.	IDL AF	2.03	1.52	25	F	"	IDL S	1.24	.93	25	Sa,Su,T,Th	"	SEA NW	.71	.57	15	F,T
Fort Dauphin, Mad.	BOS AF	2.01	1.51	25	T	"	IDL S	1.24	.93	25	Dly	"	GEI NW	.77	.60	15	F,T
Fort de France, Martinique	IDL AF	2.97	2.29	25	Su	"	IDL K	1.24	.93	20	Dly except Su	"	CHI A	.85	.75	15	F,T
Fort Lam, Fr. E. Afr.	BOS AF	2.95	2.21	25	Sa	"	UL K	1.20	.90	20	W,F,Su	"	CLE A	.85	.75	15	F,T
Fort William, Ontario, Can.	IDL P	.39	.22	15	Sa,W	"	BOS P	1.22	.92	20	W	"	IDL A	1.00	.78	15	Dly
Fortaleza (Ceara), Brazil	IDL AF	2.03	1.52	25	M	"	IDL P	1.24	.93	20	W	"	VR BC	.74	.56	15	M, Alt. Th & F
"	BOS AF	2.01	1.51	25	M	"	IDL AF	1.24	.93	25	Dly except F	Innsbruck, Austria	IDL K	1.34	1.00	20	Dly
"	LGA T	.15	.137	10	Dly	"	BOS AF	1.22	.92	25	Sa	"	IDL K	1.30	.98	20	W,F,Su
"	IDL P	1.39	1.39	25	Dly ex. M,Sa	Hamilton, Bermuda	IDL SR	1.24	.93	25	W,F,Sa,Su	"	IDL SR	1.34	1.00	25	Sa,W,F,Su
"	MIA P	1.23	1.23	25	T,Th	"	IDL P	.25	.15	15	Dly	Ipsales, Colombia	MIA AV	.73	.41	36	Dly except Su
"	MSY P	1.44	1.44	25	W	"	BOS P	.25	.15	10	Dly	"	IDL AV	.73	.41	36	Dly except Su
"	HOU P	1.59	1.59	25	Su,T	"	UL T	.25	.15	10	Dly	Irumo, Belgian Congo	IDL S	2.03	1.52	25	Sa,Su,T,Th
"	BRO P	1.51	1.51	25	Su,T	"	YTO T	.25	.15	10	Dly	Istanbul, Turkey	IDL K	1.61	1.21	20	W,Th,Su
"	LAX P	1.72	1.72	25	Dly except M	"	LGA C	.20	10	11	Dly	"	UL K	1.57	1.18	25	W,Su
Frankfurt-on-Main, Germany	BOS P	1.22	.92	20	W,F,Sa	"	MIA BO	.25	19	05	W,Sa	"	BOS P	1.59	1.19	25	Sa,T,Th
"	IDL P	1.24	.93	20	Dly except F	Hanoi, Indo-China	IDL AF	3.10	2.32	25	Sa,F,Sa	"	IDL P	1.69	1.27	25	Sa,T,Th
"	UL K	1.20	.90	20	Su,W,F	"	BOS AF	3.08	2.31	25	Sa	"	BOS AF	1.59	1.19	25	T
"	IDL SW	.97	.78	20	Dly	Hanover, Germany	IDL BO	1.24	.93	25	Dly	"	IDL AF	1.61	1.21	25	T,W,F
"	IDL SS	1.24	.93	25	Su	"	IDL SS	1.24	.93	25	Dly	"	IDL EL	1.61	1.21	25	T,Sa
"	IDL S	1.24	.93	25	Sa,Su,T,Th	Hargeisa, Br. Somaliland	IDL SR	1.24	.93	25	Su,W,F,Sa	"	IDL BO	1.61	1.21	25	Sa
"	IDL SR	1.24	.93	25	Sa,W	"	IDL BO	2.03	1.52	25	Dly	"	BOS BO	1.59	1.19	25	Sa,T,F
"	IDL TW	1.24	.93	25	Dly	Havana, Cuba	MIA P	.20	.05	.05	Dly	"	IDL SR	1.61	1.21	25	Sa,W,F,Sa
"	BOS TW	1.22	.92	25	W,Sa	"	CHI CS	.20	.17	.05	Dly	Ixtape, Mexico	MIA P	.51	.25	15	Dly
"	PHL TW	1.26	.94	25	F	"	YIP CS	.20	.17	.05	Dly	Jakarta, Java	IDL BO	2.90	2.17	25	Dly
"	IDL SR	1.24	.93	25	Su,W,F,Sa	"	HOU CS	.19	.15	.05	Dly	"	MIA BO	3.02	2.28	25	W,Sa
"	BOS AF	1.22	.92	25	T,Sa	"	MSY CS	.15	.11	.05	Dly	"	BOS BO	2.88	2.16	25	Th,Sa
"	BOS AF	1.58	1.19	25	Sa,Su,M	"	STL CS	.20	.16	.05	Dly	"	IDL K	2.90	2.17	33	Dly
Gander, N. F.	BOS AF	1.56	1.17	25	S	"	IND CS	.20	.16	.05	Dly	"	UL K	2.88	2.16	25	Su,W,F
"	IDL P	.19	.18	15	T	"	BUJ CS	.19	.16	.05	Dly	Jeddah, Saudi Arabia	IDL BO	1.92	1.44	25	Sa,W,F
"	IDL TW	.18	.15	15	T	"	ELD CS	.20	.16	.05	Dly	"	MIA BO	2.05	1.55	25	W,Sa
"	BOS TW	.15	.13	10	Dly ex. T,Th	"	EVV CS	.19	.15	.05	Dly	"	BOS BO	1.91	1.43	25	Th,Sa
"	PHL TW	.20	.15	10	F	"	FWA CS	.20	.17	.05	Dly	Jerusalem, Israel (See Lydda, Israel)	IDL P	1.47	1.05	25	T,Th
"	CHI TW	.28	.255	10	15 Wkly	"	GRW CS	.17	.15	.05	Dly	Joao Pessoa (Cabedello)	MIA P	1.25	1.05	25	T,Th
"	YIP TW	.25	.22	10	15 Wkly	"	HOT CS	.22	.20	.05	Dly	"	MSY P	1.49	1.25	25	W
"	LGA T	.18	.17	10	Dly	"	JAN CS	.17	.15	.05	Dly	"	HOU P	1.63	1.25	25	Su,T
"	BOS T	.15	.1465	10	Dly	"	KIN CS	.17	.15	.05	Dly	"	LAX P	1.82	1.25	25	M
Geneva, Switzerland	IDL S	1.24	.93	25	Sa,Su,T,Th	"	LIT CS	.20	.19	.05	Dly	Johannesburg, U. of So. Africa	IDL EL	2.03	1.52	25	T,Sa
"	IDL SW	.99	.79	20	Dly	"	MEM CS	.17	.15	.05	Dly	"	IDL K	2.03	1.52	33	T,Sa
"	IDL SS	1.24	.93	25	Dly	"	PUK CS	.19	.15	.05	Dly	"	UL K	1.69	1.49	27	F
"	IDL BO	1.24	.93	25	Dly	"	SHV CS	.20	.16	.05	Dly	"	IDL P	2.01	1.52	25	M,Th
"	IDL AF	1.24	.93	25	T,Th,F,Sa	"	HUF CS	.20	.17	.05	Dly	"	BOS P	2.01	1.52	25	M,Th
"	BOS AF	1.22	.92	25	T	"	TOL CS	.20	.17	.05	Dly	"	IDL BO	2.03	1.52	25	Dly
"	UL K	1.24	.93	20	Dly	"	MEO CS	.20	.17	.05	Dly	"	MIA BO	2.15	1.62	25	W,Sa
"	IDL K	1.20	.90	20	W,F,Su	"	SFG CS	.20	.19	.05	Dly	"	BOS BO	2.01	1.51	25	Th,Sa
"	IDL TW	1.24	.93	25	Dly except T	"	MIA K	.09	.05	.15	M,Th,Sa	"	IDL S	2.03	1.52	25	Sa,Su,T,Th
"	BOS TW	1.22	.92	25	T	"	IDL LV	.19	.17	10	Su,W,F	Jos, Nigeria	IDL BO	1.73	1.30	25	

**INTERNATIONAL AIR CARGO RATE TABLES — Continued**

RATES (See Note)					RATES (See Note)					RATES (See Note)				
Destination	Airport and Airline	Per 100 Lbs.	Per 100 Lbs.	Per 100 Lbs.	Destination	Airport and Airline	Per 100 Lbs.	Per 100 Lbs.	Per 100 Lbs.	Destination	Airport and Airline	Per 100 Lbs.	Per 100 Lbs.	Per 100 Lbs.
Karachi, Cont'd	IDL BO	2.27	1.71	25 Dly	Lima, Cont'd	SAT B	.98	.58	20 Dly	Manson, Brazil....	IDL P	1.44	1.44	25 T,Th
"	BOS BO	2.25	1.69	25 Th,Sa	"	BRO B	.97	.57	20 Dly	"	MIA P	1.24	1.24	25 Th
"	IDL AF	2.27	1.71	25 Sa,Su,M,T,Th	"	CRP B	.96	.56	20 Dly	"	MSY P	1.48	1.48	25 M,W
"	BOS AF	2.25	1.69	25 T,Sa	"	DAL B	.96	.56	20 Dly	"	HOU P	1.62	1.62	25 Su,Th
Keflavik, Iceland...	IDL P	.77	.61	20 W	"	FTW B	.99	.58	20 Dly	"	BRO P	1.54	1.54	25 Th
"	IDL SW	.77	.61	20 W	"	IDL LV	.91	.55	10 M	"	LAX P	1.79	1.79	25 M
Ketchikan, Alaska...	SEA P	.22	.09	15 Dly	"	IDL S	2.03	1.52	25 Su,T,Th,Sa	Manchester, England	IDL K	1.06	.80	20 Dly
Khartoum, Anglo-Egypt, Sudan	IDL BO	1.99	1.49	25 Dly	Lima, Belg. Congo	BOS BO	1.08	.81	22 W,F	"	IDL SS	1.06	.80	20 Dly
"	BOS BO	1.97	1.48	25 Th,Sa	Linz, Austria...	IDL K	1.34	1.01	20 F	"	IDL AF	1.06	.80	20 Dly
"	IDL SS	1.99	1.49	25 T	"	IDL SR	1.34	1.01	25 Sa,W,F,Sa	"	BOS AF	1.04	.78	20 Sa
Kimberley, So. Afr.	IDL BO	2.13	1.60	25 Dly	Lisbon, Portugal...	IDL P	1.02	.77	20 M,Th,Su	"	IDL S	1.17	.88	20 Su,T,Th,Sa
"	BOS BO	2.11	1.59	25 Th,Sa	"	BOS P	.99	.74	20 M,Th,Su	"	IDL SR	1.06	.80	20 Su,W,F,Sa
Kinshasa, Belg. Congo	IDL S	2.03	1.52	25 Sa,Su,T,Th	"	IDL S	1.22	.92	25 Su,T,Th,Sa	Manila, Philippines	LAX P	2.49	1.87	25 M,F
Kingston, Jamaica...	MIA P	.29	.10	.68 Dly	"	IDL BO	1.12	.84	20 Dly	"	SFO P	2.49	1.87	25 M,F
"	MIA K	.29	.10	.15 Dly	"	IDL BO	1.10	.82	20 Th,Sa	"	PDX P	2.49	1.87	25 M,F
"	BUZ C	.30	.20	.15 Dly	"	IDL BO	1.08	.81	20 M,W,F	"	SEA P	2.49	1.87	25 M,F
"	CHI C	.32	.22	.15 Dly	"	IDL AF	1.12	.84	20 Th	"	IDL P	2.38	1.77	25 Su,Th
"	YIP C	.32	.22	.15 Dly	"	BOS AF	1.10	.83	20 T	"	BOS P	2.42	.82	25 Su,Th
"	ELD C	.31	.21	.15 Dly	"	IDL TW	1.12	.84	20 Sa,T,Th	"	SFO PH	2.49	1.87	25 W,Sa
"	EVV C	.39	.30	.15 Dly	"	BOS TW	1.10	.83	20 Sa,T,Th	"	EDF NW	2.40	1.80	20 T,F
"	FWA C	.32	.22	.15 Dly	"	PHL TW	1.14	.85	20 Sa,T,Th	"	CHI NW	2.68	2.01	20 M,Th
"	GRW C	.30	.20	.15 Dly	"	IDL K	1.12	.84	20 W,Sa	"	CLE NW	2.69	2.02	20 M,Th
"	HOT C	.33	.23	.15 Dly	"	UL K	1.12	.84	20 W,F	"	YIP NW	2.69	2.02	20 M,Th
"	HAY C	.37	.27	.15 Dly	"	IDL BO	1.06	.80	20 Dly	"	MKE NW	2.68	2.01	20 M,Th
"	HOU C	.39	.30	.15 Dly	"	BOS BO	1.04	.78	20 Th,Sa	"	MPS NW	2.64	1.98	20 M,Th
"	IND C	.31	.21	.15 Dly	"	IDL BO	2.03	1.52	25 Dly	"	SEA NW	2.49	1.87	20 M,Th
"	JAN C	.30	.20	.15 Dly	Livingstone, S. Rhodesia	MIA BO	2.15	1.62	25 W,Sa	Manizales, Colombia	IDL AV	.64	.38	18 M,Th,Sa
"	LIT C	.31	.21	.15 Dly	"	BOS BO	2.01	1.51	25 Th,Sa	"	MIA AV	.54	.29	15 M,Th
"	MEM C	.30	.20	.15 Dly	Loanda, Belgian Congo	IDL S	2.03	1.52	25 Su,T,Th,Sa	Manono, Belgian Congo	IDL S	2.03	1.52	25 Su,T,Th,Sa
"	MSY C	.28	.17	.15 Dly	Lome, Fr. W. Afr.	IDL AF	1.73	1.30	25 T,W	Manta, Ecuador...	MIA P	.65	.35	15 T
"	PUR C	.30	.20	.15 Dly	"	BOS AF	1.71	1.28	25 M	"	MSY P	.71	.42	15 T
"	STL C	.31	.21	.15 Dly	"	IDL P	1.10	.83	20 Dly	"	HOU P	.74	.55	15 M
"	SHV C	.31	.21	.15 Dly	London, England...	BOS P	1.08	.81	20 Dly	"	BRO P	.74	.55	15 M
"	TOL C	.32	.22	.15 Dly	"	IDL TW	1.10	.83	20 9 Wkly	"	LAX P	.87	.59	20 M
"	MKC C	.33	.23	.15 Dly	"	BOS TW	1.08	.81	20 W,Sa	Manzanillo, Cuba...	MIA P	.14	.09	.05 Dly
"	ROP C	.32	.22	.15 Dly	"	CHI TW	1.17	.88	20 9 Wkly	Maracaibo, Venezuela	MIA P	.40	.22	.15 Dly
"	IDL BO	.30	.19	.05 Dly	"	PHL TW	1.12	.84	20 F	"	MIA P	.40	.22	.15 Dly
"	MIA BO	.20	.10	.05 Dly	"	IDL EL	1.17	.88	20 T,Sa	"	MSY P	.45	.29	.15 Dly except M
"	UL T	.34C	.22C	15 T	"	IDL S	1.17	.88	20 Su,T,Th,Sa	"	HOU P	.48	.32	.15 Dly
"	YTO T	.35C	.22C	15 T	"	IDL SW	.87	.70	20 Dly	"	BRO P	.48	.32	.15 Dly except Su
"	IDL AV	.30	.20	.15 Sa,Su,W,F	"	IDL BO	1.10	.83	20 Dly	"	LAX P	.62	.46	.15 Sa,M,Th
"	MIA AV	.30	.10	.05 Su,W	"	MIA BO	1.22	.93	20 Dly	"	IDL K	.50	.31	.15 Dly
Kristiansund, Nor. (See Christianand, Nor.)	IDL BO	1.96	1.47	25 Dly	"	BOS BO	1.08	.81	20 Th,Sa	"	UL K	.40	.22	.15 Dly
Kuwait, Kuwait....	BOS BO	1.94	1.46	25 Th,Sa	"	IDL SS	1.10	.83	20 Dly	"	MIA K	.55	.33	.22 M,F,W
"	MSY TA	.43	.25	25 Dly	"	IDL SR	1.10	.83	20 Su,W,F,Sa	Marcelle, France...	IDL AF	1.25	.94	25 Dly
La Ceiba, Honduras	MEX TA	.26	.19	25 M,T,W,T,F	"	IDL AF	1.08	.81	20 T,Sa	"	BOS AF	1.23	.93	25 T,Sa
Lagos, Nigeria....	IDL BO	1.73	1.30	25 Dly	"	IDL K	1.10	.83	20 Dly	Matadi, Belgian Congo	IDL S	2.03	1.52	25 Su,T,Th,Sa
"	MIA BO	1.55	1.40	25 W,Sa	"	UL T	1.06	.79	20 Dly	Mauritius.....	IDL AF	2.93	2.20	25 T,Sa
"	BOS BO	1.71	1.28	25 Th,Sa	London, Ont., Canada	LGA T	.06	.0555	10 Dly	"	BOS AF	2.91	2.18	25 T
"	IDL AF	1.73	1.30	25 T	Lula, Sweden	IDL SS	1.37	1.02	25 M	Mayaguez, P. R....	MIA R	.12	.10	25 Dly
"	BOS AF	1.71	1.28	25 T	Luluaburg, Belgian Congo	IDL S	2.03	1.52	25 Su,T,Th,Sa	"	LGA R	.20	.17	25 Dly
La Guaira, Venez.	IDL P	.50	.32	20 M,T,Sa	Lusaka, Northern Rhodesia	IDL BO	2.03	1.52	25 Dly	Mayaguez, Cuba...	ELF L	.16	.13	25 M,W,F
"	MSY P	.40	.23	20 2 Dly	Lydda, Israel.....	MIA BO	2.15	1.62	25 W,Sa	"	IDL BO	2.90	2.17	25 Dly
"	MIA P	.45	.30	20 Dly except M	"	IDL EL	1.72	1.29	25 T,Sa	"	MIA BO	3.02	2.28	25 W,Sa
"	HOU P	.48	.33	20 Dly	"	IDL TW	1.70	1.27	25 M,Sa	"	BOS BO	2.88	2.16	25 Th,Sa
"	BRO P	.48	.33	20 Sa	"	IDL TW	1.72	1.29	25 M,Sa	"	IDL K	2.90	2.17	25 Dly
"	LAX P	.62	.47	20 Sa,M,Th	"	IDL LI	1.72	1.29	25 M,Sa	"	UL K	2.86	2.15	25 Su,W,F
"	MIA K	.40	.24	.15 Dly	"	IDL AP	1.72	1.29	25 W,Sa	Medellin, Colombia	IDL AV	.61	.35	15 M,Th,Sa
"	IDL LV	.50	.32	10 Dly except M	"	BOS AF	1.70	1.27	25 T,Sa	"	MIA AV	.51	.29	15 Su,M,W,Th
"	BUZ C	.50	.33	.15 Dly	"	IDL K	1.72	1.29	25 Su,T	Merida, Mexico....	MIA P	.22	.13	.15 Dly
"	CHI C	.52	.35	.15 Dly	"	UL K	1.68	1.26	27 Su	"	MSY P	.22	.11	.15 F,Su,T
"	YIP C	.52	.35	.15 Dly	"	IDL S	1.73	1.29	25 Su,T,Th,Sa	"	HOU P	.32	.22	.15 Dly
"	ELD C	.51	.34	.15 Dly	"	IDL BO	1.72	1.29	25 Dly	"	BRO P	.30	.18	.15 Dly except Su
"	EVV C	.50	.33	.15 Dly	"	IDL BO	1.70	1.27	25 Th,Sa	"	LAX P	.46	.33	.15 Dly
"	FWA C	.52	.35	.15 Dly	"	IDL SR	1.72	1.29	25 Su,W,F,Sa	Mexicali, Mexico...	LAX P	.08	.05	.15 Dly
"	GRW C	.49	.33	.15 Dly	"	IDL P	1.52	1.52	25 Sa,T,Th	Mexico City, Mexico	MIA P	.44	.22	.15 Dly
"	HAY C	.40	.24	.15 Dly	"	MIA P	1.26	1.26	25 T,Th	"	MSY P	.38	.21	.15 Dly ex. M,Th
"	HOT C	.53	.37	.15 Dly	"	MSY P	1.51	1.51	25 W	"	HOU P	.16	.12	.15 Dly
"	HOU C	.49	.34	.15 Dly	"	HOU P	1.54	1.54	25 Sa,T	"	BRO P	.14	.09	.15 Sa,Su,Th
"	IND C	.51	.34	.15 Dly	"	BRO P	1.56	1.56	25 T	"	LAX P	.30	.25	.15 Dly
"	JAN C	.49	.33	.15 Dly	"	LAX P	1.86	1.86	25 M	"	MSY TA	.34	.26	.15 Dly
"	LIT C	.51	.34	.15 Dly	Madras, India.....	IDL BO	2.49	1.87	25 Dly	"	LGA A	.30	.24	.15 Dly
"	MEM C	.49	.33	.15 Dly	"	IDL BO	1.22	.92	20 Dly	"	DCA A	.32	.26	.15 Dly
"	MSY C	.48	.30	.15 Dly	"	MIA BO	1.34	1.02	20 W,Sa	"	BUF A	.32	.26	.15 Dly
"	PUR C	.50	.33	.15 Dly	"	BOS BO	1.21	.91	20 Th,Sa	"	CLE A	.30	.24	.15 Dly
"	STL C	.51	.34	.15 Dly	"	IDL AF	1.22	.92	25 T,F	"	CHI A	.28	.21	.15 Dly
"	SHV C	.51	.34	.15 Dly	"	BOS AF	1.21	.91	20 T	"	DAL A	.19	.14	.15 Dly
"	TOL C	.52	.35	.15 Dly	"	IDL TW	1.22	.92	25 Su,T,Th	"	LAX A	.30	.25	.15 Dly
"	MKC C	.53	.37	.15 Dly	"	PHL TW	1.22	.92	25 Su,T,Th	"	ELF A	.30	.16	.15 Dly
"	ROP C	.52	.36	.15 Dly	"	IDL K	1.18	.89	23 Su,F	"	SAT A	.16	.11	.15 Dly
"	KIN C	.55	.37	.15 Dly	"	UL S	1.22	.92	25 Su,T,Th,Sa	"	ELF L	.20	.16	.25 Dly
LaPaz, Bolivia...	MIA P	1.07	.58	20 T	Malaga, Jordan....	IDL BO	1.70	1.27	25 Dly	Milan, Italy.....	IDL LI	1.33	1.00	25 Dly
"	MSY P	1.13	.65	20 T	"	BOS BO	1.72	1.29	25 W,Sa	"	IDL AF	1.33	1.00	25 T,F,Su
"	HOU P	1.16	.68	20 Sa	"	IDL SS	1.26	.95	25 Dly	"	BOS AF	1.33	1.00	25 T,F,Su
"	BRO P	1.16	.68	20 Sa	"	IDL BO	1.43	1.08	27 Dly	"	IDL S	1.33	1.00	25 Sa,Su,T,Th
"	LAX P	1.29	.82	20 M	"	MIA BO	1.55	1.18	20 W,Sa	"	IDL SR	1.33	1.00	25 Su,W,F,Sa
"	DAL B	1.19	.70	20 M,F	"	BOS BO	1.42	1.06	20 Th,Sa	"	IDL K	1.33	1.00	20 M,W,F
"	HOU B	1.16	.68	20 M,F	Managua, Nicaragua	MIA P	.50	.24	.15 M,Th	"	UL K	1.29	.97	20 F,W
"	BRO B	1.17	.69	20 M,F	"	MSY P	.43	.23	.15 Dly except M	"	IDL TW	1.33	1.00	25 Dly except T
"	CRP B	1.16	.66	20 M,F	"	HOU P	.41	.27	.15 Dly	"	BOS TW	1.31	.98	25 Th,F
"	FTW B	1.19	.70	20 M,F	"	BRO P	.39	.24	.15 Dly	"	CHI TW	1.41	1.06	25 Dly except T
"	IDL B	1.22	.73	20 M,F	"	MSY TA	.44	.24	.15 Dly except M	"	PHL TW	1.35	1.01	25 Dly except T
"	SAT B	1.19	.70	20 M,F	"	MEX TA	.25	.16	.15 M thru Sa	"	IDL SW	1.06	.83	20 Dly
Leopoldville, Belgian Congo	LGA P	2.03	1.52	25 M,Th	Managua, Colombia	LAX P	.55	.39	.15 M,Th,Sa	Minatitlan, Mexico	MIA P	.37	.19	.15 Dly
"	BOS P	2.01	1.51	25 M,Th	"	MIA P	.50	.34	.15 Dly	Montego Bay, Jamaica	MIA P	.18	.09	.05 Dly
"	IDL S	2.03	1.52	25 Su,T,Th,Sa	"	MSY P	.43	.23	.15 Dly except M	"	MIA BO	.19	.09	.05 M,W,Sa
Lethbridge, Alb., Canada	LGA T	.32	.28	.10 Dly	"	HOU P	.41	.27	.15 Dly	"	IDL BO	.28	.18	.05 Dly
"	CTB W	.07	.04	.10 Dly	"	BRO P	.39	.24	.15 Dly	Monterrey, Colombia	IDL AV	.61	.35	.15 Dly except T
Libenge, Bel. Con...	IDL S	2.03	1.52	25 Su,T,Th,Sa	"	MSY TA	.44	.24	.15 Dly except M</					

## INTERNATIONAL AIR CARGO RATE TABLES—Continued

Destination	Airport and Airline	RATES (See Note)				Depart
		Per 100 Lbs.	Per 100 Lbs. (Over 100 Lbs.)	Per \$100 Value		
Montevideo, Uruguay	IDL P	1.50	.86	.25	T,Th,Sa	
"	MIA P	1.43	.80	.25	T,Th,Sa	
"	MSY P	1.50	.87	.25	W,F	
"	HOU P	1.53	.90	.25	Sa,T,Th	
"	BRO P	1.53	.90	.25	T,Th	
"	LAX P	1.67	1.04	.25	Th	
Montreal, Que., Canada	LGA C	.66			Dly	
"	IDL P	.06	.0405	.10	Dly	
"	CHI T	.12	1.055	.10	Dly	
"	CLE T	.09	.085	.10	Dly	
"	LGA NE	2.08	6.55	.10	Dly	
"	BOS NE	1.05	4.55	.10	Dly	
Mosoro, Brazil	IDL P	1.41		.15	T,Th	
"	MIA P	1.24		.15	T,Th	
Munich, Germany	IDL SR	1.30	.98	.25	Dly except Th	
"	BOS P	1.28	.96	.25	Sa,W	
"	IDL SS	1.30	.98	.25	Sa,T,W,F	
"	IDL S	1.30	.98	.20	Sa,Su,T,Th	
"	IDL AF	1.30	.98	.25	M,Th	
"	BOS AF	1.28	.96	.25	T,Sa	
"	IDL K	1.30	.98	.20	Th,F,Sa,M	
"	UL K	1.26	.95	.22	F	
Nairobi, Kenya	IDL SR	1.30	.98	.25	Sa,W,F,Sa	
"	IDL BO	2.03	1.52	.25	Dly	
"	BOS BO	2.01	1.51	.25	W,F,Sa	
"	IDL EL	2.03	1.51	.25	W,Sa	
"	IDL AF	2.03	1.51	.25	W,Sa	
"	BOS AF	2.01	1.51	.25	T,Sa	
"	IDL SS	2.03	1.52	.25	T	
Nandi, Fiji	RFO BC	1.72	1.29	.25	M,Th,F	
"	HNL BC	1.08	.81	.20	M,Th,F	
"	VR BC	1.72	1.29	.25	M & Alt. Th,F	
Naples, Italy	IDL LI	1.42	1.07	.25	Dly	
"	IDL S	1.42	1.06	.25	Sa,Su,T,Th	
Nassau, Bahamas	MIA P	.07	.04	.05	3 Dly	
"	UL T	.23	.18	.05	F	
"	YTO T	.22	.18	.05	F	
"	IDL BO	.17	.13	.05	Dly	
"	MIA BO	.07	.04	.05	Dly	
Natal, Brazil	IDL P	1.45	1.45	.25	T,Th	
"	MIA P	1.25	1.25	.25	T,Th	
"	MSY P	1.48	1.48	.25	W	
"	HOU P	1.62	1.62	.25	Sa,T	
"	BRO P	1.54	1.54	.20	T	
"	LAX P	1.80	1.80	.20	M	
N'Dola, Rhodesia	IDL S	1.97	1.48	.25	Sa,Su,T,Th	
Niamey, Fr. W. Afr.	IDL AF	1.73	1.30	.25	M,T,Th,F	
"	BOS AF	1.71	1.28	.25	T	
Nice, France	IDL S	1.27	.95	.25	Sa,Su,T,Th	
"	IDL SS	1.27	.95	.25	Sa	
"	IDL AF	1.27	.95	.20	Dly	
"	BOS AF	1.25	.93	.25	T,Sa	
"	IDL P	1.16	.87	.20	Su	
"	BOS P	1.12	.84	.20	Su	
"	IDL K	1.27	.95	.20	Su,T,Sa	
"	UL K	1.22	.92	.22	W,F,Su	
"	IDL SR	1.27	.95	.25	Sa,W,F,Sa	
Nicosia, Cyprus	IDL BO	1.61	1.21	.25	Dly	
"	MIA BO	1.73	1.31	.25	W,Sa	
"	BOS BO	1.59	1.19	.25	T,Sa	
Nogales, Son., Mex.	MEX L	.19	.16	.25	Dly	
Nome, Alaska	SEA P	.85	.23	.15	T,F	
Norrköping, Sweden	IDL SS	1.17	.88	.20	Dly	
North Bay, Ont., Canada	LGA T	.06	.0755	.10	Dly	
Noumea, New Caledonia	IDL AF	3.49	2.62	.25	Monthly	
"	BOS AF	3.47	2.60	.25	Monthly	
Nueva Gerona (Isle of Pines), Cuba	MIA EA	.14			Dly	
Nueva Ocotepaque, Hoc.	MSY TA	.47	.36		M,W,F	
"	MEX TA	.27	.21		T,Th,Sa	
Nuremberg, Germany	IDL K	1.27	.95	.20	F,Su,M,T	
"	UL K	1.23	.93	.20	Sa,F	
"	IDL SS	1.27	.95	.25	Sa,T,F	
"	IDL S	1.27	.95	.25	Sa,Su,T,Th	
"	IDL AF	1.27	.95	.25	M,T,F,Sa	
"	BOS AF	1.26	.94	.25	T,Sa	
"	IDL SR	1.27	.95	.25	Sa,W,F,Sa	
"	IDL SW	.97	.78	.20		
Oaxaca, Mexico	MIA P	.51	.25	.15	Dly	
Okinawa	EDF NW	2.00	1.57	.20	T,F,Sa	
"	CHI NW	2.21	1.66	.20	M,Th,F	
"	MKE NW	2.21	1.66	.20	M,Th,F	
"	MPS NW	2.20	1.65	.20	M,Th,F	
"	SEA NW	2.19	1.64	.20	M,Th,F	
"	SFO PH	2.50	1.88	.25	W,Sa	
Oran, Algeria	IDL AF	1.38	1.02	.25	Dly except Su	
"	BOS AF	1.34	1.01	.25	T,Sa	
Oruro, Bolivia	MIA P	1.10	.50	.20	Sa,M,Th	
"	MSY P	1.16	.66	.25	Sa,Su	
"	HOU P	1.19	.60	.20	W,Sa,Su	
"	BRO P	1.19	.60	.20	Sa,Su	
"	LAX P	1.32	.83	.23	M,Th	
Ose, Norway	IDL SS	1.34	.93	.25	Dly	
"	IDL S	1.34	.93	.25	Sa,Su,T,Th	
"	IDL AF	1.34	.93	.25	Dly	
"	BOS AF	1.22	.92	.20	T,Sa	
"	IDL K	1.24	.93	.20	Dly	
"	UL K	1.20	.90	.20	W,F,Sa	
"	BOS P	1.22	.92	.20	F	
"	IDL P	1.24	.93	.20	F	
Ottawa, Ont., Canada	LGA C	.07			Dly	
"	LGA T	.07	.0618	.10	Dly	
Palembang, N.E.I.	IDL BO	2.79	2.09	.25	Dly	
"	BRO BO	2.77	2.08	.25	Th,Sa	
"	UL K	2.83	2.12	.25	W,F,Sa	
Palermo, Italy	IDL LI	1.47	1.11	.25	Dly	
Panama City, Pan.	MIA P	.39	.19	.15	Dly	
"	MSY P	.45	.20	.15	Dly except M	
"	HOU P	.48	.20	.15	Dly	
"	BRO P	.48	.20	.15	Dly except Su	
"	LAX P	.61	.43	.15	M,Th,Sa	
"	HOU B	.48	.31	.15	Dly	
"	CRP B	.48	.31	.15	Dly	
"	MIA B	.51	.31	.15	Dly	
"	DIA K	.39	.20	.15	Th	
"	UL K	.54	.32	.15	Sa,M,Th	
Pantelleria, Italy	IDL LI	1.50	1.13	.25	W	
Paramaribo, Surinam	IDL P	.64	.39	.15	T,Sa	
"	MIA P	.57	.33	.15	F,Su	
"	MSY P	.64	.40	.15	F,Su	
"	HOU P	.67	.43	.15	F,Su	
"	BRO P	.67	.43	.15	Th	
"	LAX P	.81	.57	.20	M	
"	IDL K	.64	.30	.15	Su,W,Sa	
"	MIA K	.57	.33	.15	Su,W,Sa	
"	UL K	.69	.43	.15	M,Th,Sa	
Paris, France	IDL S	1.17	.88	.20	Sa,Su,T,Th	
"	IDL EL	1.17	.88	.20	T,Sa	
"	IDL SS	1.17	.88	.20	Dly	
"	IDL SR	1.17	.88	.20	Sa,W,F,Sa	
"	IDL AF	1.17	.88	.20	Dly	
"	BOS AF	1.15	.86	.20	T,Sa	
"	IDL K	1.17	.88	.20	Dly	
"	UL K	1.12	.84	.20	Su,W,F	
"	IDL TW	1.17	.88	.20	15 Weekly	
"	BOS TW	1.15	.86	.20	M,Th,F	
"	CHI TW	1.24	.94	.20	15 Weekly	
"	PHL TW	1.24	.94	.20	15 Weekly	
"	YIP TW	1.22	.92	.25	15 Weekly	
"	IDL P	1.17	.88	.20	Dly	
"	BOS P	1.15	.86	.20	Th,F	
Paramaribo, Brazil	IDL SW	.91	.74	.20		
"	MIA P	.96	.45	.15	Su,M,W,F	
"	UL P	.89	.48	.15	Dly	
Parral, Chih., Mex.	IDL P	.10	.08	.15	Dly	
Pereira, Colombia	MIA AV	.64	.38	.15	M,Th,Sa	
"	IDL AV	.54	.29	.15	M,Th	
Pisa, Italy	IDL SW	1.08	.88	.20		
Pnom Penh, Indo-China	IDL AF	3.02	2.29	.25	Sa,Su,W	
"	BOS AF	3.01	2.25	.25	Sa	
Ponce, P. R.	MIA R	.12	.10		Dly	
"	LGA R	.20	.17		Dly	
Popayan, Colombia	IDL AV	.72	.30	.15	M,Th,Sa	
"	MIA AV	.61	.30	.15	M,Th	
Port au Prince, Haiti	MIA P	.15	.12	.15	Dly	
"	IDL P	.25	.21	.15	Dly	
"	MIA K	.15	.12	.15	M	
"	IDL K	.25	.21	.15	M	
Port Elizabeth, U. of S. Afr.	IDL BO	2.23	1.67	.25	Dly	
Port of Spain, Trinidad	BOS BO	2.21	1.68	.25	Th,Sa	
"	IDL P	.45	.30	.15	T,Th,Sa	
"	MIA P	.48	.34	.15	T,Th,Sa	
"	MSY P	.45	.31	.15	W,F	
"	HOU P	.48	.34	.15	Su,T,Th	
"	BRO P	.48	.34	.15	T,Th	
"	LAX P	.62	.48	.15	Th,Sa	
"	UL T	.50	.34	.15	W	
"	YTO T	.50	.34	.15	W	
"	IDL K	.45	.30	.15	M,W,F	
"	MIA K	.38	.24	.15	M,W,F	
"	IDL AL	.45	.30		F	
Port Sudan, Ang. Eg. Sudan	IDL BO	1.95	1.46	.25	Dly	
"	BOS BO	1.93	1.45	.25	Th,Sa	
Porto Alegre, Brazil	IDL P	1.52	.89	.25	T,Sa	
"	MIA P	1.42	.86	.25	Su,T	
"	MSY P	1.52	.89	.25	W	
"	HOU P	1.82	1.11	.25	Th,Su	
"	BRO P	1.08	1.03	.25	Th	
"	LAX P	2.14	1.25	.25	M	
Prague, Czechoslovakia	IDL S	1.31	.98	.25	Su,T,Th,Sa	
"	UL K	1.31	.98	.20	T,Th	
"	IDL SR	1.31	.98	.25	Sa,W,F,Sa	
"	IDL SW	1.03	.83	.20		
Preston, Cuba	MIA P	.20	.10	.05	Dly	
Prestwick, Scotland	IDL SS	1.03	.77	.20	Dly	
"	UL T	.99	.74	.20	Su,M,Th,F	
"	IDL K	1.03	.77	.20	M,T,Th,F,Sa	
"	IDL BO	1.03	.77	.20	Dly	
"	MIA BO	1.15	.83	.20	W,Sa	
"	BOS BO	1.01	.76	.20	Th,Sa	
Puebla, Puebla	DAL B	.41		.17	Dly	
"	PTW B	.41		.17	Dly	
"	LRD B	.27		.17	Dly	
"	SAT B	.34		.17	Dly	
Puerto Cabezas, Nic.	MSY TA	.60	.47		M,W,F	
"	MEX TA	.48	.38		T,Th,Sa	
Puerto Cortes, Honduras	MSY TA	.42	.34		M,W,F	
"	MEX TA	.35	.18		T,Th,Sa	
Puerto Suarez, Bolivia	MIA P	1.16	.63	.20	Su,M,Th	
"	MSY P	1.22	.70	.25	Su	
"	BRO P	1.25	.73	.25	Sa,Su	
"	LAX P	1.39	.87	.25	M,Th	
"	HOU P	1.25	.73	.25	Sa,Su,W	
Pusan, Korea	CHI NW	2.68	3.01	.20	M,Th,F	
"	SEA NW	2.49	1.87	.20	M,Th,F	
"	MSP NW	2.64	1.98	.20	M,Th,F	
"	IDL NW	2.64	2.05	.20	M,Th,F	
Quito, Ecuador	MIA P	.64	.34	.15	Dly except Sa	
"	MSY P	.70	.41	.15	Dly except M	
"	HOU P	.73	.44	.15	Dly except F	
"	BRO P	.73	.44	.15	Dly ex. Sa,F	
"	LAX P	.86	.58	.20	M,Th	
"	IDL AV	.74	.44	.15	M,W,F	
"	MIA AV	.64	.35	.15	M,Th	
"	MIA AE	.55	.29		W,F	
Rangoon, Burma	IDL BO	2.65	1.90	.25	Dly	
"	MIA BO	2.77	2.10	.25	W,Sa	
"	BOS BO	2.64	1.98	.25	Th,Sa	
"	IDL K	2.65	1.99	.25	W,F,Sa	
"	IDL SS	2.65	1.99	.25	F	
Recife (Pernambuco), Brazil	IDL P	1.48	1.48	.25	M,T,Th,Sa	
"	MIA P	1.16	.75	.20	M,Th,Sa	
"	MSY P	1.40	1.60	.25	Su,W,F	
"	HOU P	1.44	1.64	.25	Sa,T,Th	
"	BRO P	1.56	1.56	.25	Sa,T,Th	
"	LAX P	1.84	1.84	.25	M	
"	IDL LI	1.47	1.11	.25	Dly except Su	
Reggio Calabria, Italy	LGA T	.35	.23	.15	Dly	
Regina, Sask., Canada	IDL AF	2.86	2.15	.25	Su,W	
Reunion Island	BOS AF	2.84	2.13	.		

**INTERNATIONAL AIR CARGO RATE TABLES—Continued**

RATES (See Note)					RATES (See Note)					RATES (See Note)							
Destination	Airport and Airlines	Per 100 Lbs.	Per 100 Lbs. Over 100 Lbs.	Per \$100 Value	Depart	Destination	Airport and Airlines	Per 100 Lbs.	Per 100 Lbs. Over 100 Lbs.	Per \$100 Value	Depart	Destination	Airport and Airlines	Per 100 Lbs.	Per 100 Lbs. Over 100 Lbs.	Per \$100 Value	Depart
San Luis Potosi, S.L.P., Mexico	ELP L	.16	.13	.26	Dly	Sanva, Fiji Islands	SFO P	1.00	1.20	.25	Sa,M,Th	Toronto, Ont., Can.	LGA A	.07	.0478	.10	Dly
San Salvador, El Salvador	MIA P	.42	.21	.15	Dly	"	SEA P	1.00	1.20	.25	S,Th	"	BUF A	.07	.0478	.10	Dly
"	MSY P	.38	.19	.15	Dly ex. M,Th	"	SFO BC	1.00	1.30	.25	M,Th,F	"	LGA T	.05	.0455	.10	Dly
"	HOU P	.36	.24	.15	Dly	"	HNL BC	1.08	.81	.20	M,Th,F	Torreón, Coah., Mex.	ELP L	.10	.09	.25	Dly
"	BRO P	.34	.30	.15	Dly except Su	Sydney, Australia	LAX P	2.20	1.66	.25	Sa,Th	Trapani, Italy	IDL LI	1.35	1.12	.25	F
"	LAX P	.50	.35	.15	M,Th,Sa	"	SFO P	3.20	1.66	.25	Th	Trinidad, Cuba	MIA P	.15	.09	.05	Dly
"	MSY TA	.39	.20	...	Dly	"	SEA P	3.20	1.66	.25	Sa	Tripoli, Libya	MIA BO	1.46	1.09	.25	Dly
"	MEX TA	.20	.13	...	Dly	"	PDX P	3.20	1.66	.25	Sa	"	MIA BO	1.50	1.20	.25	W,Sa
Santa Clara, Cuba	MIA P	.19	.09	.05	Dly	"	IDL K	3.61	2.64	.25	Dly except M	"	BOS BO	1.44	1.08	.25	Th,Sa
Santa Cruz, Bolivia	MIA P	1.16	.63	.20	Sa,Su,M,Th	"	UL K	3.50	2.63	.27	W,Su	Traillito, Honduras	MSY TA	.48	.37	...	Dly
"	MSY P	1.21	.69	.20	Sa,Su	"	IDL BO	3.61	2.64	.25	Dly	Tahiti, Tahiti	MEX TA	.28	.22	...	M,T,W,Th,F
"	HOU P	1.24	.72	.25	F,W,Sa,Su	"	MIA BO	3.63	2.74	.25	W,Sa	"	IDL S	2.03	1.82	.25	Sa,Su,T,Th
"	BRO P	1.24	.73	.25	F,W,Sa	"	BOS BO	3.49	2.62	.25	Th,Sa	Tahitapa,	IDL AF	1.36	1.02	.25	Dly
"	LAX P	1.37	.88	.25	F,W,Sa,Su	"	SFO BC	2.20	1.66	.25	M,Th	Tunja, Tunja	IDL LI	1.82	1.14	.25	T,Th,Sa
Santa Maria, Azores	IDL P	.86	.66	.20	M,T,Th	"	HNL BC	1.56	1.17	.25	M,Th	"	BOS AF	1.34	1.00	.25	T,Sa
"	BOS P	.84	.64	.15	M,T,Th	Sydney, N.S.	VR BC	2.20	1.66	.25	M, alt. Th	"	LGA TW	1.36	1.02	.25	Th
"	IDL TW	.86	.66	.20	Sa,T,Th	"	BOS T	.10	.0895	.10	Dly	"	PHL TW	1.38	1.08	.25	Th
"	BOS TW	.84	.64	.20	Sa,T,Th	Taipei, Formosa	SFO PH	2.49	1.87	.25	W,Sa	"	BOS TW	1.24	1.00	.25	Th
Santa Maria, Colombia	IDL AV	.56	.33	.15	M,Th,Sa	"	IDL NW	2.74	2.05	.20	M,Th,F	Turpan, Mexico	HOU P	.17	.12	.15	Dly
"	MIA AV	.46	.24	.15	Sa,M,W,Th	"	MKE NW	2.68	2.01	.20	M,Th,F	"	BRO P	1.26	.06	.15	Dly except Su
Santiago, Chile	MSY P	1.30	.73	.15	Dly except Th	"	MPN NW	2.64	1.98	.20	M,Th,F	"	LAX P	.34	.27	.15	Dly
"	HOU P	1.37	.79	.15	Dly ex. M,Th	"	PDX NW	2.49	1.87	.20	M,Th,F	Tuxtla, Gutierrez, Mexico	MIA P	.47	.23	.15	Dly
"	BRO P	1.40	.82	.15	Dly except T	Talca, Peru	SFO NW	2.49	1.87	.20	M,Th,F	"	MSY P	.44	.22	.15	Dly ex. M,Th
"	LAX P	1.53	.96	.15	M,Th,Sa	"	MIA P	.72	.38	.15	Dly except Sa	"	HOU P	.26	.20	.15	Dly
Santiago, Cuba	IDL BO	.37	.20	.15	W,Sa	"	MSY P	.78	.45	.20	Dly except Sa	"	BRO P	.24	.16	.15	Dly except Su
"	MIA BO	.19	.09	.05	W,Sa	Tampico, Mexico	HOU P	.13	.09	.15	Dly except Sa	Unambura,	LAX P	.40	.31	.15	Dly
Sao Luis, Brazil	IDL P	1.09	.73	.20	T,Th,Sa	"	BRO P	.10	.06	.15	Sa,Su,T,Th	Belgian Congo	IDL S	2.69	1.82	.25	Sa,Su,T,Th
"	MIA P	1.10	.16	.20	Th	"	LAX P	.36	.28	.15	Dly	Vancouver, B.C., Canada	SEA U	.07	.048	.10	Dly
"	MSY P	1.38	.38	.25	Sa,M,T,W,Th	Tamatave, Madagascar	IDL AF	2.72	2.06	.25	Sa,W,F	"	SFO U	.12	.098	.10	Dly
"	HOU P	1.81	.81	.25	Sa,T,Th	"	BOS AF	2.71	2.04	.25	T,Sa	"	LGA U	.39	.293	.10	Dly
"	BRO P	1.43	.43	.25	Sa,T,Th	Tananarivo, Madagascar	IDL AF	2.68	2.01	.25	W,F,Sa	"	BDL U	.41	.314	.10	Dly
"	LAX P	1.62	.62	.25	Sa,T,Th	"	BOS AF	2.66	2.00	.25	Sa	"	BOS U	.41	.314	.10	Dly
Sao Paulo, Brazil	IDL P	1.43	.86	.25	F,Sa,Su,T,W	Tangier, Morocco	IDL AF	1.26	.95	.25	Sa,M,W	"	EWB U	.39	.293	.10	Dly
"	MIA P	1.32	.82	.25	Sa,T	"	BOS AF	1.24	.93	.25	T	"	PHL U	.39	.293	.10	Dly
"	MSY P	1.56	.95	.25	W,F	Tapachula, Mexico	MIA P	.42	.21	.15	Dly	"	PHL U	.39	.293	.10	Dly
"	HOU P	1.75	.04	.25	Sa,Th	"	MSY P	.49	.19	.15	Dly ex. M,Th	"	CLE U	.33	.249	.10	Dly
"	BRO P	1.07	.06	.25	Th	"	HOU P	.29	.21	.15	Dly	"	DCA U	.37	.28	.10	Dly
"	LAX P	1.90	.99	.25	M	"	LAX P	.53	.25	.15	M,Th,Sa	"	CHI U	.29	.209	.10	Dly
"	BRO B	1.67	.96	.25	Sa,T,Th,Sa	Tegucigalpa, Hon.	MIA P	.47	.23	.15	Dly	"	DEN U	.17	.14	.10	Dly
"	CRP B	1.84	.94	.25	Sa,T,Th,Sa	"	MSY P	.49	.19	.15	Dly ex. M,Th	"	SLC U	.14	.104	.10	Dly
"	DAL B	1.42	.86	.25	Sa,T,Th,Sa	"	HOU P	.39	.26	.15	Dly	"	LAX U	.15	.13	.10	Dly
"	FTW B	1.42	.86	.25	Sa,T,Th,Sa	"	BRO P	.37	.22	.15	Dly ex. M,Th	"	PDX U	.37	.284	.10	Dly
"	HOU B	1.42	.86	.25	Sa,T,Th,Sa	"	LAX P	.53	.25	.15	M,Th,Sa	"	LGA T	.38	.25	.10	Dly
"	LRD B	1.47	.91	.25	Sa,T,Th,Sa	"	MSY TA	.40	.23	.15	Dly except Su	Varadero, Cuba	MIA P	.12	.08	.05	Dly
"	SAT B	1.42	.89	.25	Sa,T,Th,Sa	"	MEX TA	.29	.16	.15	Dly except Su	Veracruz, Mexico	MIA P	.39	.19	.15	Dly
San Salvador, Brazil	IDL P	1.54	.88	.25	Dly except M	Teheran, Iran	IDL BO	2.69	1.82	.25	Dly	"	HOU P	.21	.16	.15	Dly
"	MIA P	1.28	.38	.25	T,Th,Sa	"	MIA BO	2.15	1.82	.25	W,Sa	Victoria, Brazil	MSY P	1.89	1.59	.25	W,F
"	MSY P	1.54	.84	.25	Sa,W,F	"	BOS BO	2.01	1.51	.25	Th,Sa	"	HOU P	1.81	.81	.25	Sa,T,Th
"	HOU P	1.72	.72	.25	Sa,T,Th	"	IDL AF	2.03	1.82	.25	Sa,Th	Victoria, B.C.	BRO P	1.72	.73	.25	Sa,T,Th
"	BRO P	1.64	.64	.25	T,Th	"	BOS AF	2.01	1.81	.25	Sa	Victoria de las Tunas, Cuba	LGA T	.38	.375	.10	Dly
"	LAX P	1.94	.94	.25	M	"	UL K	1.99	1.49	.25	Sa	Vienna, Austria	MIA P	.14	.09	.05	Dly
Shannon, Eire	IDL P	.99	.74	.20	M,Th,Sa	"	IDL SS	2.03	1.52	.25	Th,Sa	"	IDL P	1.24	.93	.25	Dly except Th
"	BOS P	.98	.73	.20	Th	"	IDL SS	1.99	1.49	.25	Sa	"	BOS P	1.21	.91	.20	Su,W
"	IDL LI	1.00	.75	.25	W,Sa	"	IDL AF	2.03	1.82	.25	Sa,Th	"	IDL AF	1.37	1.03	.25	M,Th,Sa
"	UL T	.96C	.72C	.25	W	"	IDL K	2.03	1.52	.25	Sa,Th	"	BOS AF	1.35	1.02	.25	Sa
"	IDL TW	.99	.74	.20	10 Weekly	"	UL K	1.99	1.49	.25	Sa	"	IDL SS	1.36	1.03	.25	W,Su
"	BOS TW	.98	.73	.20	W,Sa	"	IDL SS	2.03	1.52	.25	Th,Sa	"	IDL K	1.37	1.00	.20	Su
"	PHL TW	1.02	.76	.20	10 Weekly	Tel Aviv, Israel	IDL S	1.72	1.29	.25	Sa,Su,T,Th	"	IDL S	1.37	1.03	.25	Dly except M
"	IDL SR	.99	.74	.20	Sa,W,F,Sa	"	IDL EL	1.64	1.23	.25	T,Sa	"	IDL SR	1.37	1.03	.25	Sa,W,F,Sa
"	IDL K	.99	.74	.20	Sa,W,F	"	IDL AF	1.72	1.29	.25	W,Su	Villahermosa, Mex.	MIA P	.34	.17	.15	Dly
"	IDL SW	.77	.61	.20	Su	"	IDL SR	1.72	1.29	.25	Sa,W,F,Sa	"	MSY P	.39	.16	.15	Dly ex. M,Th
Singapore, Mal. St.	IDL BO	2.82	2.13	.25	Dly	"	IDL SS	1.45	1.09	.25	W,Th,Su	Vistay, Sweden	IDL SS	1.32	.99	.25	Dly
"	MIA BO	2.95	2.23	.25	W,Sa	Tels, Honduras	MSY TA	.43	.35	.15	Dly	Wake Island	LAX P	1.55	1.16	.20	Sa,W
"	BOS BO	2.82	2.11	.25	Th,Sa	"	MEX TA	.38	.19	.15	M,T,W,Th,F	"	SFO P	1.55	1.16	.20	Dly ex. T,W
"	SFO P	2.82	2.13	.25	F	Tokyo, B.W.I.	IDL BO	.43	.30	.18	M,W,Sa	"	PDX P	1.55	1.16	.20	Dly except Su
"	LAX P	2.41	1.81	.25	F	"	IDL P	3.33	2.65	.25	T	"	SEA P	1.55	1.16	.20	Dly except Su
"	IDL AF	2.82	2.13	.25	W	"	BOS P	3.82	2.64	.25	T,Th	Warsaw, Poland	IDL S	1.45	1.09	.25	Sa,Su,T,Th
"	BOS AF	2.82	2.11	.25	W,F,Sa	"	LAX P	2.36	1.77	.25	T,W	Wellington, N.Z.	IDL BO	2.89	2.29	.25	Dly
"	IDL K	2.82	2.13	.25	Sa,Su,Th	"	SFO P	2.36	1.77	.25	Sa,Su,Th	"	BOS BO	3.94	2.88	.25	Th,Sa
"	UL K	2.70	2.10	.25	Su	"	SEA P	2.36	1.77	.25	Sa,Th	Windsor, Ont., Can.	LGA T	.06	.0555	.10	Dly
Soma, Nicaragua	MSY TA	.55	.42	...	Dly	"	PDX P	2.36	1.77	.25	Sa,Th	Winnipeg, Man., Canada	LGA T	.21	.18	.10	Dly
"	MEX TA	.43	.33	...	M,T,W,Th,F	"	IDL AF	3.53	2.65	.25	Sa	"	GFK NW	.04	...	...	Dly
Stanleyville, Bel Congo	IDL S	2.03	1.52	.25	Sa,Su,T,Th	"	IDL SS	3.53	2.65	.25	Sa	Zurich, Switzerland	IDL SR	1.34	.93	.25	F,Sa,Su,W
Stavanger, Norway	IDL SS	1.34	.93	.25	Dly	"	BOS AF	3.53	2.64	.25	Sa	"	IDL SS	1.34	.93	.25	Dly
Stockholm, Sweden	IDL BO	1.26	.95	.25	Dly	"	IDL SS	3.53	2.65	.25	M,F	"	IDL S	1.34	.93	.25	Sa,Su,T,Th
"	UL K	1.20	.95	.20	Su,W,F	"	EDF NW	2.40	1.80	.20	Th	"	IDL AF	1.24	.93	.25	Sa,M,Th
"	IDL S	1.26	.95	.25	Sa,Su,T,Th	"	CHI NW	2.88	2.01	.20							

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# It's Airfreight for RIDDLE

"O F COURSE, airmail was in the van of the coming air cargo industry," wrote Richard Malkin in *Boxcars in the Sky*. "It tipped off the possibilities of air express, then airfreight and most recently air parcel post."

John Paul Riddle, however, did the opposite. He developed an air express business just to prove he could fly the mail. That was back in the summer of 1927. He hauled packages regularly in Waco 10s between Cleveland, Cincinnati and Louisville. So that fall he got a contract to fly mail between Cincinnati, Indianapolis and Chicago.

Today Riddle still is operating in his own inimitable way to prove a few points. He is flying freight instead of just packages, at a rate of about 14 million pounds a year, and at a very tidy profit rather than at the loss of 1927.

One of the points Riddle is proving is that a set-of-his-pants pilot can be a shrewd business man. Another is that aviation can help create industry in such a resort center as Miami and a once-starving Caribbean island as Puerto Rico, and find markets for their products in such industrial centers as New England and the Middle West.

It was as a result of that mail contract which got the pioneer pilot started that produced the Embry-Riddle School for Aviation in Cincinnati in 1928. Hundreds learned to fly at the school at old Lunken Airport. Then it was sold to Avco to become the parent of American Airlines.

Like many others in the 1930s, Riddle drifted to Miami. Came World War II and a new Embry-Riddle school quickly became the nation's largest. Thousands of American and British cadets were taught to fly, and thousands more how to repair and service aircraft engines.

During the war, Riddle went to Brazil to perform a similar service. He created an airline to transport per-



John Paul Riddle



J. G. Helvey

sonnel between Miami and Sao Paulo, and just to keep in character proceeded to make it pay off. On a side trip to Puerto Rico, he discovered that needleworkers there are highly skilled.

After the war a deal was made with a New York glove maker. Cloth was cut in New York and flown to San Juan. There gloves were sewn and flown back. It was easy for the planes to carry payloads each way while ferrying personnel to Sao Paulo, and easier to operate just to Puerto Rico after the Brazilian contract was cancelled. Today cloth still is flown there to be finished into gloves and returned to the New York market. And the same methods are employed in the search for new markets in Puerto Rico, New York and Miami.

J. G. Helvey joined Riddle ten years ago; now he is vice president and general manager. Salesmen work directly under him. He starts them in traffic, moves them to the warehouse. After they have learned methods of operations and rates, they get Helvey's personal instructions. They are taught to consider their clients' problems as well as their own. Just as important, they must work as hard for their community as for their company.

Miami is intent on developing manufactures in an effort to balance the economy of this great resort center. Helvey and his salesmen work directly with the new industries section of the Miami Chamber of Commerce.

As soon as a new plant moves to Miami, and scores do each year, a Riddle

salesman calls, not so much to look for business, as to offer assistance. From their background in traffic, warehousing and conversations with pilots and other persons, they give valuable aid in recommending markets and advice on packaging and shipping.

Consider, for example, the case of B. A. Schiff and Associates, manufacturers of roller coasters and other devices for amusement parks. Nothing could appear more unlikely as a prospective air cargo customer. Yet a Riddle salesman called regularly and on several occasions was able to offer business tips.

Last spring the manufacturer got in a jam. Several amusement parks in New England planned simultaneous openings, and they all put in orders with the Miami plant. Schiff had learned to rely on the Riddle salesman. He was asked to help.

Together they worked out the problem. During May and June the airline carried nearly 100,000 pounds of equipment to northern amusement parks. Included were complete roller coasters, amusement park boats and the like, heavy merchandise hard to handle.

"This meant a lot to us," says Schiff, "as speedy handling and delivery saved us many vital days, and enabled us to meet certain deadlines. Our actual charges were only slightly more than trucking rates, and we far than made up this difference with only one day's operation. We found that we could accept more orders than we had originally

(Continued on page 33)

## AVIANCA

(Continued from page 10)

domestic competitor, Lineas Aereas Nacionales Consolidadas S.A. (LAN-SA), although the latter has been preserved as a separate company. The carrier also owns a feeder line called Aerotaxi, Ltda, that operates a fleet of eight Cessna 195s and one Norseman. The feeder-line flies charter operations or special services as well as some regular schedules inside this air-minded country.

Within its corporate setup this air cargo leader has a number of other interests, including a 30% interest in Colombia's next largest passenger line, SAETA. Avianca in turn is 40% owned by Pan American, but neither direct nor indirect control by Pan Am has been exercised. The association rather has been mainly in the technical field and that of agency representation outside of Colombia. Within Colombia, of course, the reverse situation holds true. Avianca also owns 51% of Cali Airport Company, founded in conjunction with Panagra to administer and develop the airport at Cali. A similar company, formed with Pan American helps Avianca perform the same function at Bogota. All in all, the Colom-

bian airline owns about 50 airports from small landing strips in the backwoods areas to the modern airports featured in the large cities. Where there are municipal and government-owned airports, Avianca acts as administrator by arrangement with the local authorities.

Despite these various interests and its important contribution to the country's expanding economy, Avianca is proud of its air cargo record. The nearly 140 million pounds of airfreight flown last year seem fair to be surpassed by this year's figures. Within 1952, air cargo volume has for several months already reached the daily average of more than 200 tons flown per day! And while other carriers with longer routes might have chalked up more cargo ton miles flown than Avianca, the airline is still proud of the more than 19 million ton miles flown in 1951. Officials of the airline claim that about 30% of its total revenue is derived from its cargo activities. In the United States, the figure is considerably smaller, but also growing.

Part of the success of its air cargo activities is due to a unique feature instituted by Avianca and its subsidiary, Aerotaxi. This consists of a purchasing service for the airlines' customers, who can place an order for any cargo item with the agent. He in turn will see to

it that the purchase is made at the nearest available point and flown back by the next return flight. In the backwoods, or "llanos," area of mountainous Colombia, this system obviates the necessity of leaving one's ranch or business to 'go shopping.' Neither a commission nor a surcharge is levied by this special service; only the regular freight or air express rates are applied.

Mainly, the items flown most frequently consist of newspapers, fresh vegetables, textiles, meat and processed foods. Other items often flown consist of automobiles, coffee, concrete, steel pipes and agricultural equipment. In 1951, more than 140 million dollars worth of gold and silver bullion, revenue stamp paper and banknotes were also listed on Avianca's manifests. The cargo fleet upon which most of the



above was flown is made up of two C-54s, five C-46s and six C-47s. This relatively tiny fleet handles more than 75% of all the airfreight transported in Colombia.

**S**TILL another example of the extent to which the airline is an important contributor to the economy of the country is its unique arrangement with the national government (which owns about 2% of the airline) by which it administers the country's airmail service. Not only does Avianca fly the mail, but it also operates airmail post offices, sells stamps and money orders and attends to all the usual postal functions, including the actual delivery of the mail. For this, the carrier maintains a corps of about 300 letter carriers. Furthermore, it maintains an airmail post office or section with each of its ticket offices throughout the country as well as sub-stations wherever necessary, according to volume. Lansa, since 1950, also performs similar service for the government.

On its part, the government participates in the income taken from Avianca's stamp sales, the carrier keeping the balance as compensation for these functions. In this way, the government acquires substantial revenue at little expense. The government, therefore, can be said to be subsidized by the airline, rather than the other way around as in the United States and most other countries. The head of the Avianca



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## CARGO-PASSENGERS

(Continued from Page 9)

AT THIS POINT the question might understandingly arise: why did

we pick 1963 as the big year? Why not 1958, 1960 or 1972? The answer is simple enough.

First of all, the actual year is not too important. Once we know that it will be soon, when "soon" is doesn't

matter. If "soon" turns out to be 11 years instead of 10, it will be soon enough. The important fact is that it *will* happen, and that it will happen in the very near future—at a very conservative estimate, not more than 10 years from now.

We feel that very soon we shall see the reversal of cargo and passenger figures. Look at what has happened within just the last five years. Notice also that the advances listed above have all been enormous, more indicative of a surge than a growth.

Far from feeling that this meteoric rise has been a freak occurrence, we feel that air cargo has still a long way to climb before it starts leveling off to what economists can consider a normal volume. It is true that in the event of a depression, this growth will not continue at so rapid a pace, but whether you want to consider the present business peak as either normal, abnormal or subnormal, air cargo will continue to climb—faster as the business pendulum swings out, slower as it swings in. But it will grow. And it will top passenger volume—and all this will happen, we insist, within 10 short years.

But if it happens by 1960, we won't be surprised.

## COMPARISON OF THE TRAFFIC AND FINANCIAL RESULTS OF THE AIR TRANSPORT INDUSTRY IN THE CALENDAR YEARS 1951 AND 1952

### THE 11 INTERNATIONAL AIRLINES OF THE UNITED STATES

#### TRAFFIC:

Scheduled Services:	1951	1952	% Change
No. Revenue Passengers	2,030,426	2,243,300	+10.5%
Revenue Pass.-Miles (000)	2,599,031	3,000,000	+15.4%
U. S. Mail Ton-Miles	21,980,111	21,736,000	-1.1%
Foreign Mail Ton-Miles	5,028,816	5,632,000	+12.0%
Cargo Ton-Miles	70,690,847	74,240,000	+5.0%
Total Revenue Ton-Miles	370,751,696	420,424,000	+13.4%

#### OPERATING REVENUES:

	1951	1952	% Change
Passenger Revenues	\$184,685,168	\$209,432,000	+13.4%
U. S. Mail Revenues	55,448,109	52,404,904	-5.5%
Foreign Mail Revenues	10,106,448	10,420,972	+3.1%
Cargo Revenues	24,751,399	26,855,319	+8.5%
Excess Baggage Revenues	3,701,374	4,330,554	+17.0%

Total Revenues from Scheduled Operations	\$278,692,498	\$303,443,739	+8.9%
--	---------------	---------------	-------

Total Revenues from non-scheduled operations	\$ 3,675,964	\$ 4,000,000	+8.8%
--	--------------	--------------	-------

Total Revenues from Transport Operations	\$282,368,462	\$307,443,739	+8.9%
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<b>TOTAL OPERATING EXPENSES</b>	<b>\$266,855,234</b>	<b>\$302,339,000</b>	<b>+13.3%</b>
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<b>NET OPERATING REVENUES</b>	<b>\$ 15,513,228</b>	<b>\$ 5,104,739</b>	<b>-67.1%</b>
-------------------------------	----------------------	---------------------	---------------

NOTE: Based upon nine months reporting of both traffic, revenues and expenses in calendar year 1952. The revenues reported for 1952 do not include awards of back mail-pay for the period from April 1948 to September 1952 to Pan American, amounting to \$3,000,000. Nor do they include incidental non-transportation revenues.

## COMPARISON OF THE TRAFFIC AND FINANCIAL RESULTS OF THE AIR TRANSPORT INDUSTRY IN THE CALENDAR YEARS 1951 AND 1952

### THE IRREGULAR SERVICE CARRIERS

	1951	1952	% Change
No. of Passengers	638,386	718,184	+12.5%
Revenue Passenger Miles (000)	1,080,369	1,307,250	+21.0%
Cargo Ton-Miles	80,850,000	77,616,000	-4.0%
Total Revenues	68,338,311	85,422,911	+25.0%
Total Expenses	62,860,991	82,347,898	+31.0%

Estimates for 1952 are based upon the percentage of increase in the first nine months of 1952 as compared with the same period for 1951.

## COMPARISON OF THE TRAFFIC AND FINANCIAL RESULTS OF THE AIR TRANSPORT INDUSTRY IN 1951 AND 1952

### THE LOCAL SERVICE CARRIERS

#### TRAFFIC

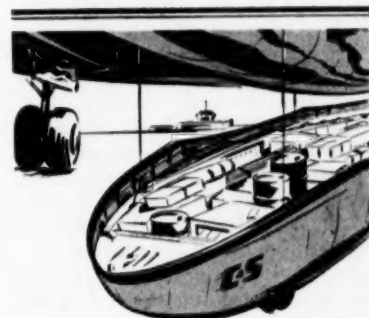
	1951	1952	% Change
No. Revenue Passengers	1,520,892	1,719,204	+13.0%
Revenue Passenger-Miles (000)	311,429	338,123	+8.6%
Mail Ton Miles	783,989	921,091	+17.5%
Express Ton-Miles	901,413	849,650	-5.7%
Freight Ton-Miles	915,504	1,102,245	+20.4%
Total Revenue Ton-Miles	32,716,080	35,472,986	+8.4%

#### REVENUES & EXPENSES

	1951	1952	% Change
Passenger	\$ 16,061,466	\$ 18,596,765	+15.8%
Mail	17,926,252	20,262,000	+13.0%
Express	355,599	391,000	+9.9%
Freight	307,196	369,252	+16.8%
All Other	795,514	800,000	+0.6%
Total Operating Revenues	\$ 35,446,027	\$ 40,419,017	+14.0%

<b>TOTAL OPERATING EXPENSES</b>	<b>\$ 35,493,304</b>	<b>\$ 41,635,000</b>	<b>+17.3%</b>
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Estimates for 1952 based upon nine-months traffic reports and 6 months revenue and expense reports. For the first six months of 1952 operating expenses exceeded operating revenues by \$1,002,244. No account is taken of any retroactive mail awards taken into the accounts during the last half of 1952, if any.



## Connie's 8000 lb. Papoose

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postal administration is an official who is fully accredited to the Universal Postal Union in Switzerland.

From the earliest days of its existence, when the airline started its operations with just two single-engined Junkers F-12 seaplanes, it has carried air cargo. In its first year of operation, only 20 passengers flew with the carrier, but airfreight, especially newspapers, went aboard on every flight. Greater public interest in the airline was aroused in 1922 when, with a fleet now of seven aircraft, it inaugurated one of the first regular airmail services. The next year, of course, it flew the cargo of banknotes that helped avert a panic.

Thus the development of the airline was due in a very large measure to its cargo activities, which activities have continued to expand and force the further growth of Avianca and of Colombia. Though neither a world airline nor a large airline, considering its unduplicated route miles, it is still a leader in its achievements as a dominant and vital force in the economic life of Colombia and as a carrier of air cargo.



## CARGO TRENDS

(Continued from Page 8)

jection. A recent study by the Port of New York Authority estimates 1954 Airfreight and Air Express Volume at 368,000,000 ton miles. Lockheed's estimate for this year range from a lower limit of 370,000,000 ton miles to 405,000,000 ton miles at the upper limit of the trend for freight and express.

*Prototype Aircraft Report.* The following is quoted from Page 7 of the "Final Report of the Prototype Group to the Civil Transport Aircraft Evaluation and Development Board," dated January 15, 1949.

"The Air Cargo Potential Group of the Evaluation Board in a recent study

have made some estimates of the volume of domestic air cargo by 1955 at various rates. These are:

.5 billion ton miles at the 1948 rates of 18 to 20¢ (ton mile)

1.2 billion ton miles if the rate is 14¢

3 billion ton miles if the rate is 9 to 10¢

Lockheed's estimates do not tie volume directly to rates, but the present rates (including the recent 10% increase) and Lockheed's estimate for 1955 of a freight volume of 350 to



450,000,000 ton miles, ties in closely with the above quotation.

*Government Reports on Airfreight.* It is interesting to note that a recent Government report on Air Cargo made the point that the group felt that new and more efficient cargo airplanes would not appreciably lower airline operating costs inasmuch as the increased depreciation on new airplanes would just about offset the operating economies. This statement is true only as far as it goes inasmuch as the report's cost figures were based on a load factor of 60 to 70% and an airplane utilization of only 5½ hours per day. Payload capacities of the airplanes used in their calculation were also low as shown in the table below.

	Government Report	Lockheed Figures—Actual Payload
Model	Payload*	
C-46	12,000 lbs.	12,500 lbs.
DC-4	18,000 lbs.	21,000 lbs.
DC-6A	26,000 lbs.	28,400 lbs.
1049B	33,600 lbs.	38,500 lbs.

\* Probably based on military weights.

Obviously, calculations made on such

a low base will reflect a disproportionate increase in depreciation and will not reflect the true operating economies which the new types of aircraft will produce. Therefore, their statement may be considered overly conservative.

The Government Study also made the point that present airfreight rates were too low for profitable operation and quoted figures for the year 1949 and the first half of 1950 to substantiate this claim. These figures show that Slick Airways, Flying Tiger Line and U. S. Airlines were losing money in spite of all operating economies which they have placed in effect.

In direct contradiction, it is to be noted that in spite of the first half figures mentioned above, Slick Airways completed operations in 1950 with net earnings of \$506,000, equal to \$2.79 per share of common stock. This profit was made with the same rates that the committee stated were not sufficient to permit profitable operation and with relatively obsolete (C-46) equipment. To quote from Slick's financial report "in the month of March and throughout the remainder of the year, we reported a profit in every month



but one. Profits in these months would have been attained through the growth experienced in the normal commercial business during 1950, in the absence of another and unexpected development—the Korean emergency. Late in July, due to the demands of the Department of Defense, a portion of our fleet was diverted to direct domestic airlift for the Armed Forces at regular commercial rates, thus hastening an already substantial growth trend."

1951 also saw Slick and the Tigers

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finish their operating year with a profit, again at freight rates lower than most of the industry, positive proof that airfreight can be a profitable operation.

### CONCLUSION

It is hoped that the foregoing market research study will, in some small way, assist Lockheed's Management in solving some of the many problems that lie ahead. No new transportation industry has grown without a great deal of hard work on the part of all of its proponents.

Each day aggressive cargo operators are developing new applications for the economic usage of air cargo. Better methods of ground handling, new and more efficient cargo terminals, improved training of personnel and "designed for the job" cargo airplanes will all contribute to a faster, cheaper and more reliable cargo service.

The day is rapidly approaching when air cargo will become the usual, rather than the unusual, method of handling shipments where speed, with economy, are of paramount importance.



### AIR CARGO TERMINAL

(Continued from Page 4)

operation from the point of load consolidation in the terminal to the ultimate position in the airplane. The nature of air cargo indicates that the bulk of packages can be moved into the airplane by conveyor. A sampling of air-bills in MATS operations for a three-month period revealed that approximately 67% of the packages handled weighed less than 100 pounds; 2.7% weighed between 100 and 300; 4% between 300 and 1000; .7% between 1000 and 3000; and only 0.5% over 3000 pounds. Assuming packages up to 300 pounds to be movable by conveyors, approximately 94% of traffic could be handled across the bridge in that manner.

The packages that do not lend themselves to being handled by conveyor for reasons of weight, shape or fragility, must be moved by a device that can negotiate not only the bridge but the required distance inside the airplane as well. Here again is presented a problem unique to air

## GRAPHIC STUDY OF A LOADING DOCK

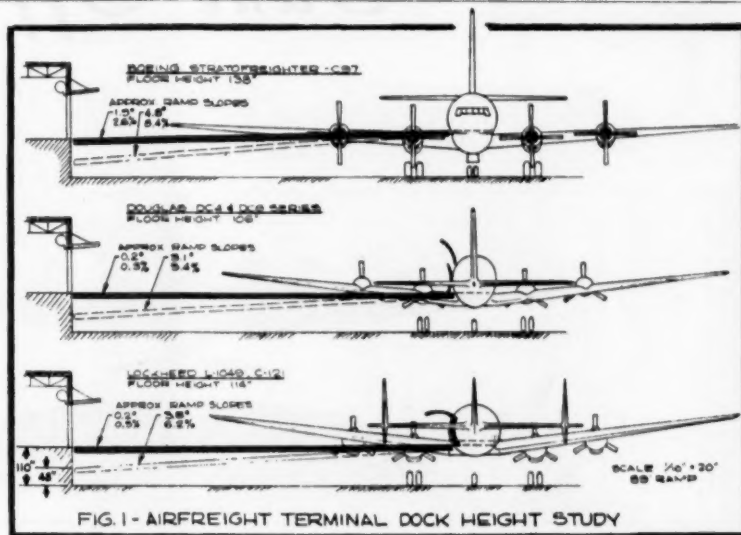


FIG. 1-AIRFREIGHT TERMINAL DOCK HEIGHT STUDY



transportation. For reasons of weight consideration, the floor of an airplane can never be expected to be made as strong as the bed of a truck or the floor of a box car. So the devices that are used to move the large and heavy packages must have a wheel configuration that will afford concentrated load distribution compatible with the strength of the floor structure. For example, the DC-6A is capable of taking a concentrated load of approximately 1000 pounds through a six-inch diameter wheel having a tire width of two inches. If we are to move a 4000 pound object over that floor it would require a device having four such wheels. In order to utilize this maximum load rating, the rolling elements of the multiwheel handling device should be spaced at least 10 inches apart.

In summary, the air cargo terminal will consist of the terminal building and the required loading docks, supported by specific material handling devices for the most efficient movement of cargo. With such accommodations, the on/off loading of cargo aircraft should be at the approximate rate of 1000 pounds per minute.

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## RIDDLE

(Continued from Page 27)

anticipated, and make deliveries on these additional orders on time."

Take the case of manufacturers of aluminum windows and aluminum and glass jalousies. Although aluminum ingot must be shipped to Miami, window and jalousy producers are able to compete on the national market by making special types demanded by increasing numbers of architects.

Last fall the market for jalousies in particular was so great all plants found themselves running from two to four weeks behind orders. Riddle was asked to help them catch up by speeding shipments North. Soon pickup trucks for air shipments were making regular daily calls.

One manufacturer went so far as to invent an easy-to-assemble knocked-down type of jalousy designed expressly for air shipment. It saves 50% on transportation space and 75% on storage.

### U. S. Gateway

In tropical United States, of which Miami is the center, situated at the closest point to 98% of Latin America, Riddle salesmen run into the strangest sort of business.

Several times a year, salesman E. H. Weisbrod turns his car from the highway into a narrow mud road, bounces along for miles on this road flanked by dense jungle growths. At last he reaches one of his clients whose headquarters is a tiny shack hidden in the wilderness.

Now he is in the gladiola farming region. There he takes orders for the movement of thousands upon thousands of pounds of gladioli. The flowers will be cut, trucked and loaded into planes one day, to be delivered the following morning to New York florist shops.

Salesman B. A. Shultz will call at long, low rambling structures where millions of tropical fish representing hundreds of varieties are swimming about in tanks. These fish arrive by air from all parts of the tropical world. Miami plants produce other varieties through hybridization, or bring the imports to standards of size and health.

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Zone	First pound over 8 ounces	Additional pounds
	Cents	Cents
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4.....	65	50
5.....	70	56
6.....	75	64
7.....	78	72
8.....	80	80

Weight	Zone 1, 2 & 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
Over 8 ounces to—						
1 pound.....	\$0.60	\$0.65	\$0.70	\$0.75	\$0.78	\$0.80
2 pounds.....	1.08	1.15	1.26	1.39	1.47	1.60
3 pounds.....	1.56	1.65	1.82	2.03	2.19	2.40
4 pounds.....	2.04	2.15	2.38	2.67	2.91	3.20
5 pounds.....	2.52	2.65	2.94	3.31	3.63	4.00
6 pounds.....	3.00	3.15	3.50	3.95	4.35	4.80
7 pounds.....	3.48	3.65	4.06	4.59	5.07	5.60
8 pounds.....	3.96	4.15	4.62	5.23	5.79	6.40
9 pounds.....	4.44	4.65	5.18	5.87	6.51	7.20
10 pounds.....	4.92	5.15	5.74	6.51	7.23	8.00
11 pounds.....	5.40	5.65	6.30	7.15	7.95	8.80
12 pounds.....	5.88	6.15	6.86	7.79	8.67	9.60
13 pounds.....	6.36	6.65	7.42	8.43	9.39	10.40
14 pounds.....	6.84	7.15	7.98	9.07	10.11	11.20
15 pounds.....	7.32	7.65	8.54	9.71	10.83	12.00
16 pounds.....	7.80	8.15	9.10	10.35	11.55	12.80
17 pounds.....	8.28	8.65	9.66	10.99	12.27	13.60
18 pounds.....	8.76	9.15	10.22	11.63	12.99	14.40
19 pounds.....	9.24	9.65	10.78	12.27	13.71	15.20
20 pounds.....	9.72	10.15	11.34	12.91	14.43	16.00
21 pounds.....	10.20	10.65	11.90	13.55	15.15	16.80
22 pounds.....	10.68	11.15	12.46	14.19	15.87	17.60
23 pounds.....	11.16	11.65	13.02	14.83	16.59	18.40
24 pounds.....	11.64	12.15	13.58	15.47	17.31	19.20
25 pounds.....	12.12	12.65	14.14	16.11	18.03	20.00
26 pounds.....	12.60	13.15	14.70	16.75	18.75	20.80
27 pounds.....	13.08	13.65	15.26	17.39	19.47	21.60
28 pounds.....	13.56	14.15	15.82	18.03	20.19	22.40
29 pounds.....	14.04	14.65	16.38	18.67	20.91	23.20
30 pounds.....	14.52	15.15	16.94	19.31	21.63	24.00
31 pounds.....	15.00	15.65	17.50	19.95	22.35	24.80
32 pounds.....	15.48	16.15	18.06	20.59	23.07	25.60
33 pounds.....	15.96	16.65	18.62	21.23	23.79	26.40
34 pounds.....	16.44	17.15	19.18	21.87	24.51	27.20
35 pounds.....	16.92	17.65	19.74	22.51	25.23	28.00
36 pounds.....	17.40	18.15	20.30	23.15	25.95	28.80
37 pounds.....	17.88	18.65	20.86	23.79	26.67	29.60
38 pounds.....	18.36	19.15	21.42	24.43	27.39	30.40
39 pounds.....	18.84	19.65	21.98	25.07	28.11	31.20
40 pounds.....	19.32	20.15	22.54	25.71	28.83	32.00
41 pounds.....	19.80	20.65	23.10	26.35	29.55	32.80
42 pounds.....	20.28	21.15	23.66	26.99	30.27	33.60
43 pounds.....	20.76	21.65	24.22	27.63	30.99	34.40
44 pounds.....	21.24	22.15	24.78	28.27	31.71	35.20
45 pounds.....	21.72	22.65	25.34	28.91	32.43	36.00
46 pounds.....	22.20	23.15	25.90	29.55	33.15	36.80
47 pounds.....	22.68	23.65	26.46	30.19	33.87	37.60
48 pounds.....	23.16	24.15	27.02	30.83	34.59	38.40
49 pounds.....	23.64	24.65	27.58	31.47	35.31	39.20
50 pounds.....	24.12	25.15	28.14	32.11	36.03	40.00
51 pounds.....	24.60	25.65	28.70	32.75	36.75	40.80
52 pounds.....	25.08	26.15	29.26	33.39	37.47	41.60
53 pounds.....	25.56	26.65	29.82	34.03	38.19	42.40
54 pounds.....	26.04	27.15	30.38	34.67	38.91	43.20
55 pounds.....	26.52	27.65	30.94	35.31	39.63	44.00
56 pounds.....	27.00	28.15	31.50	35.95	40.35	44.80
57 pounds.....	27.48	28.65	32.06	36.59	41.07	45.60
58 pounds.....	27.96	29.15	32.62	37.23	41.79	46.40
59 pounds.....	28.44	29.65	33.18	37.87	42.51	47.20
60 pounds.....	28.92	30.15	33.74	38.51	43.23	48.00
61 pounds.....	29.40	30.65	34.30	39.15	43.95	48.80
62 pounds.....	29.88	31.15	34.86	39.79	44.67	49.60
63 pounds.....	30.36	31.65	35.42	40.43	45.39	50.40
64 pounds.....	30.84	32.15	35.98	41.07	46.11	51.20
65 pounds.....	31.32	32.65	36.54	41.71	46.83	52.00
66 pounds.....	31.80	33.15	37.10	42.35	47.55	52.80
67 pounds.....	32.28	33.65	37.66	42.99	48.27	53.60
68 pounds.....	32.76	34.15	38.22	43.63	48.99	54.40
69 pounds.....	33.24	34.65	38.78	44.27	49.71	55.20
70 pounds.....	33.72	35.15	39.34	44.91	50.43	56.00

Then Riddle flies them to New York and the northern markets.

It's a growing industry worth more than a million dollars a year. And as an example of the interest which Riddle salesmen take in their customers, Shultz' predecessor, Hank Saunders, now is the manufacturer of special tropical fish tanks.

The Rare Bird Farm at Miami is the nation's largest importer of tropical animals and birds. They arrive from all parts of the Caribbean, Central and South America, from Africa and India.

Riddle flies them, from monkeys and tapirs to anteaters and jaguars, and from brilliantly-plumed macaws to jabbering myna birds, to New York. From there they are routed to zoos, aviaries and laboratories.

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Salesmen Howard Carter, A. D. Snoko and Ebo Johnson meanwhile are keeping other products flying between New York, Miami and Puerto Rico.

Leonard Grossman, managing director of the Miami Fashion Council, flatly maintains that local air cargo operations largely are responsible for making the city the nation's seventh garment center. Men's sports coats are bundled merely with gummed tape for air shipment. Women's frocks ride on hangers or in cellophane packages to avoid wrinkling.

As estimated three million, five hundred thousand vacationers visit Miami each year. They are heavy purchasers of all sorts of merchandise designed for the tropics, helping to make Miami the nation's greatest per capita retail sales center. Millions of dollars worth of this merchandise arrives by air.

Saks Fifth Avenue has a policy of flying all merchandise by air freight to Miami area outlets. The store has discovered that speedy air transportation holds inventories to a minimum, permits a more rapid turnover of capital and avoids obsolescence.

Riddle salesmen also call regularly on shops in the Miami area. Their method of helping Hartley's department store is typical.

The store was expecting a consignment of merchandise from a New York firm. It advertised a sale for May 29. Copy and layouts were at the newspapers. On May 27 it received word the order could not be shipped until the day before the sale.

M. A. Greenberg, traffic manager for Hartley's, remembered Riddle. The New York firm was requested to ship to Miami via the air cargo line. The order was received by Riddle late on the afternoon of May 28. The consignment arrived at the store the following morning at eight o'clock, in time for the sale.

"Of course this saved us a large number of sales," wrote Greenberg. "Because of this exceptional service and in view of your low prices, I have ordered all our fast delivery merchandise to be shipped by Riddle Air Line."

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Before World War II, only Miamians and residents of tropical South Florida were able to taste the delights of mangoes, papayas and other warm-climate fruits. Few visitors were around in those days when they ripened.

Now Miami is a year-around vacation center, and visitors have an opportunity to enjoy them. They are creating a rapidly growing demand which, until recently, was a disappointment. Fruit picked green for shipment just did not taste so well. Besides, they are so delicate they make poor travelers by surface transportation. Now fruit is picked ripe, flown to northern markets the same day and appear on tables of consumers the following day.

Riddle sits in on sales meetings whenever he is in Miami. Each meeting is a fresh adventure to him.

"Salesmen's reports," he says, "are a constant source of amazement. I have been in Miami more than 20 years, but these fellows daily are discovering things about the area I never dreamed possible.

"Every report they give is fresh evidence of the tremendous potential for development of this land. And each one of them is fully aware he is playing a role in its spectacular growth."

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 2 times " to **BUENOS AIRES, Arg.**

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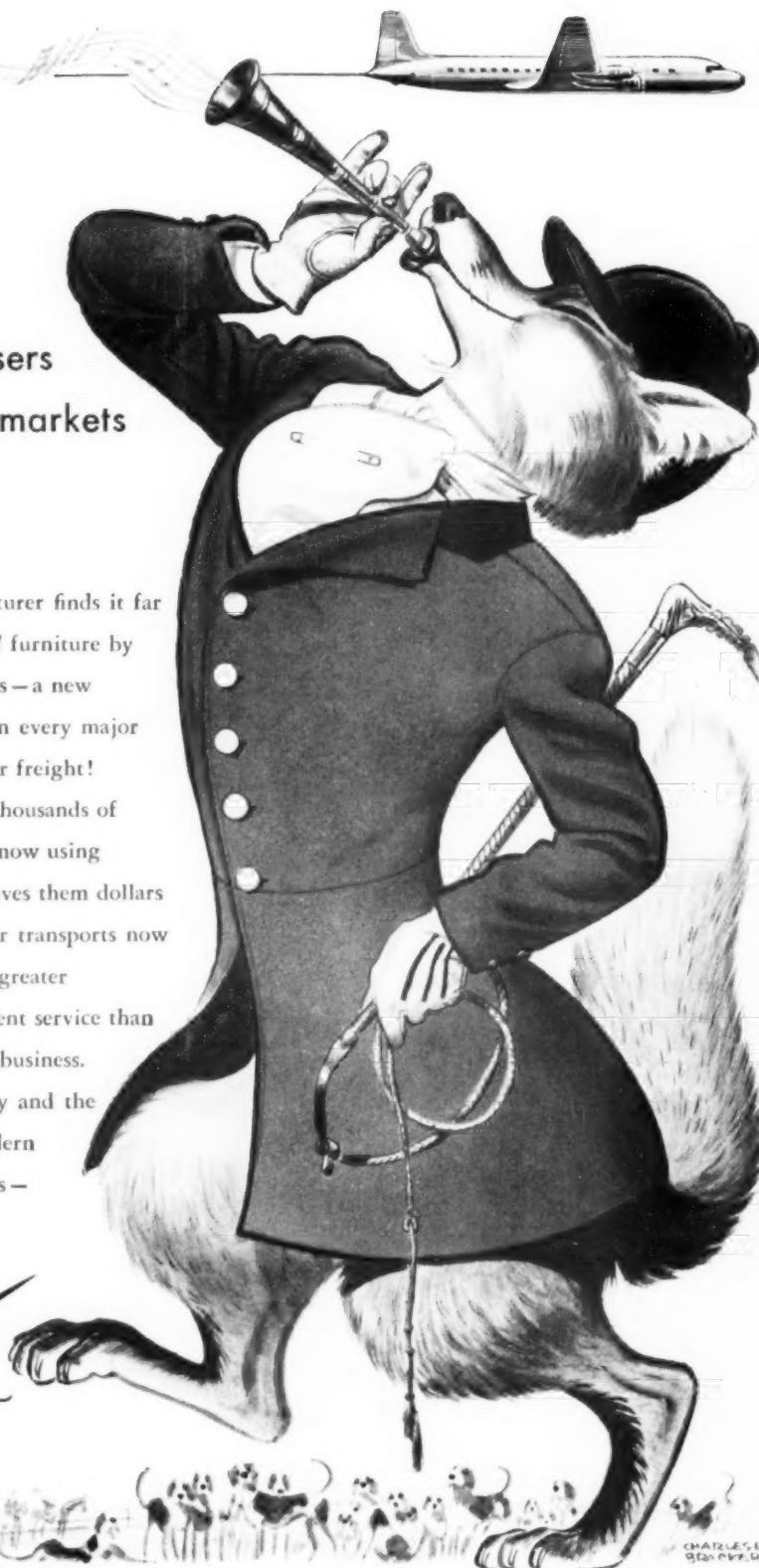
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